

In This Issue—*Pyroxylin Painting Described*

MOTOR AGE

Vol. XLVII
Number 24

PUBLISHED WEEKLY AT 5 SOUTH WABASH AVENUE
CHICAGO, JUNE 11, 1925

Thirty-five Cents a Copy
Three Dollars a Year

**The good mechanics in
the service stations of the
country make public opin-
ion on motor cars. Ask
any one of them what he
thinks is the most modern
motor. He will tell you
it's the Line Eight.**

Edward S Jordan
President
Jordan Motor Car Company
Cleveland, Ohio

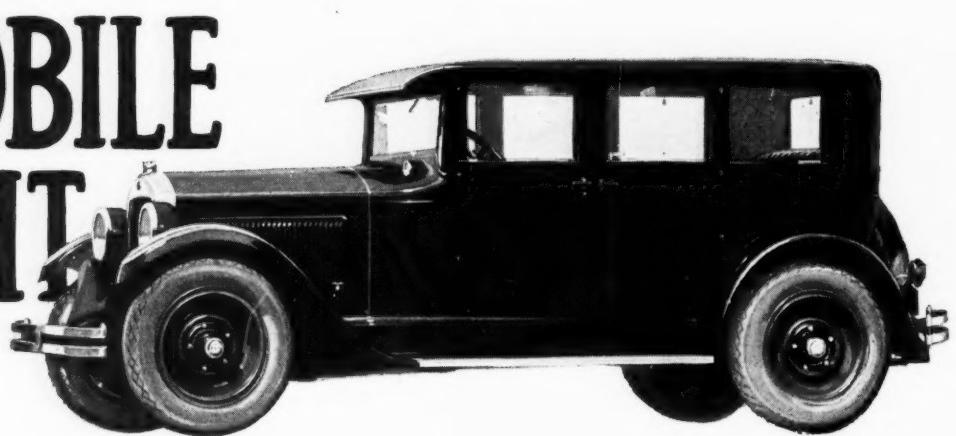
ENTHUSIASM everywhere—unbounded enthusiasm. The returns on the new Hupmobile Eight are rolling in. Dealers are reporting that everyone who drives this wonderful Eight wants one on the spot. They all say that they have never had such a completely delightful motoring experience. That is because the Hupmobile Eight brings something distinctly new to modern motoring. You'll get it before you've driven five miles—and you won't get it unless you drive this Eight.

Reduced Prices

Four body types, not excelled within \$1000 of their prices in beauty, finish and equipment. Five-passenger Sedan, \$2195; Four or Two-passenger Coupe, \$2095; Touring Car and Roadster, \$1795. Prices F. O. B. Detroit; tax to be added. Equipment includes balloon tires, bumpers front and rear, snubbers, transmission lock, automatic windshield cleaner, rear-view mirror. Hupmobile four-cylinder cars, in a complete line of popular body types, at prices which make them the outstanding value in their field.

GET ACQUAINTED WITH
YOUR HUPMOBILE DEALER.
HE IS A GOOD MAN TO KNOW

THE HUPMOBILE EIGHT



QUALITY BRAND Piston Rings

QUALITY
DRAIN OIL
NO-LEAK-O
SEAL DRAIN

Will Increase Your Piston Ring Sales

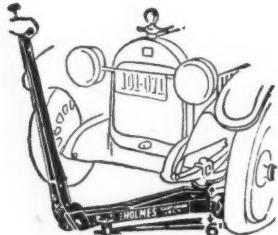
If our description of these rings were restricted to one word — that word should be QUALITY. However, each of these four popular piston rings has so many distinctive features that this space is entirely inadequate to do any **one** of them justice. You will have to read all about them to fully appreciate QUALITY BRAND popularity, which you can easily do by sending for special literature giving complete information. Remember there is a QUALITY BRAND piston ring for every requirement with all sizes and oversizes carried in stock and a guaranteed twenty-four hour shipping service.

SERVICE DIVISION

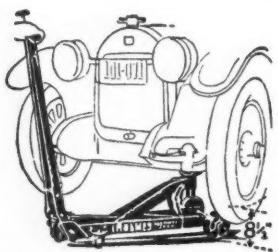
The Piston
RING COMPANY
Muskegon, Michigan



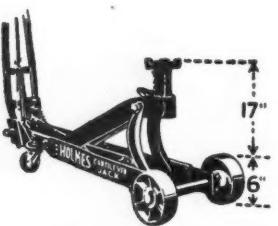
Holmes Triumphs again with the - HOLMES CANTILEVER JACK!



DROPS TO SIX INCHES



LIFTS CAR EIGHT INCHES



RAISE TO FULL 17 INCHES

Features!

- Drops to 6 inches
- Lifts Car 8 inches
- Raises to 17 inches
- Lifting Platform quickly adjusted
- Extremely easy to operate
- Operates From Any position
- Quickly Placed in Position
- Swings Under Wheels
- Platform and Post Extra Large
- Clearance Under Frame 11-4"
- Roller and Ball Bearing
- All Working Parts Exposed but Adequately Protected
- A Four Wheel Jack

Just as Holmes' Wreckers and other Holmes' Shop and Garage Equipment have proven their superiority to Automotive repairmen, so has the Holmes Cantilever Jack.

The Holmes Cantilever Jack absolutely fills every requirement of a garage jack. It drops to 6 inches, raises to 17 inches and lifts the car full 8 inches. It makes the purchase of a low type and a high type jack unnecessary, as it combines the range of both types.

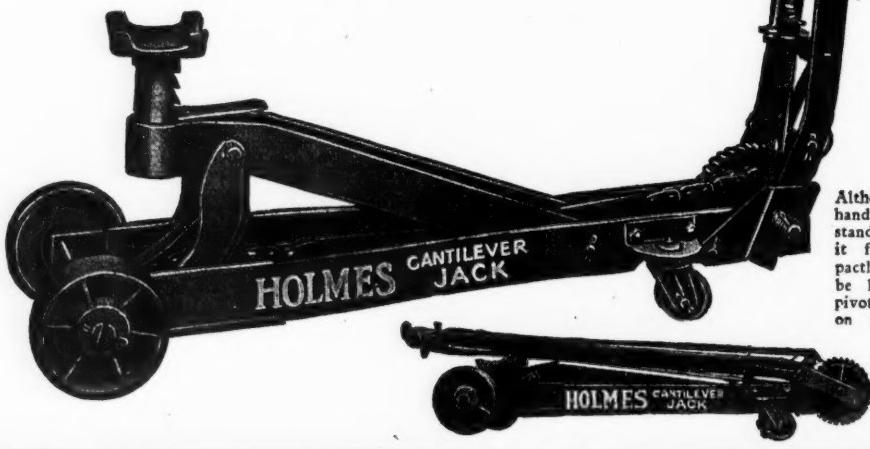
It is simple, speedy and easy to operate. There is no tripping of pawls, unlocking of handle or setting of controls. These all assume normal position when handle is released and jack automatically returns to low position when free of load.

The Holmes Cantilever Jack saves you time and money, too—it costs the same as other jacks, does the job in half the time and eliminates hunting around for "that high jack" or "that low jack."

Look over the important features which are listed below and let your jobber explain what they mean to rapid, efficient garage service. See the Holmes Cantilever Jack on his floor or write this company for complete catalog.

Price \$36.00

ERNEST HOLMES COMPANY
Chattanooga, Tennessee



MOTOR AGE

Reg. U. S. Pat. Office

Vol. XLVII

No. 24

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MOTOR AGE is published every Thursday by
 CHILTON CLASS JOURNAL COMPANY

Mallers Building, 5 South Wabash Avenue, Chicago

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 MOTOR AGE

Owned by United Publishers Corporation, 239 West 39th Street, New York, CHARLES G. PHILLIPS, President; A. C. PEARSON, Vice-President; FRITZ J. FRANK, Treasurer; H. J. REDFIELD, Secretary.

Cable Address, Motage, Chicago
 Telephone, Central 7045

OFFICES

New York—U. P. C. Bldg., 239 West 39th St., Phone Pennsylvania 0080.
 Detroit—7338 Woodward Ave., Phone Empire 4890.
 Cleveland—538-540 Guardian Bldg., Phone Main 6432.
 Philadelphia—56th and Chestnut Sts., Phone Sherwood 1424.
 Indianapolis—519 Merchants Bank Bldg., Phone Riley 3212.

SUBSCRIPTION RATES: United States, Mexico and U. S. Possessions, \$3.00 per year; Canada, \$5.00 per year; all other countries in Postal Union, \$6.00 per year; single copies, 35 cents.

Member of the Audit Bureau of Circulations.
 Member, Association Business Papers, Inc.

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Subscriptions accepted only from the Automotive Trade
 Entered as Second Class Matter Sept. 19, 1899, at the Post Office at
 Chicago, Ill., under Act of March 6, 1879.

The Ugly Duckling lays a golden egg

Most dealers think their fan belt stock must be an Ugly Duckling—a no-profit line carried to meet the occasional demand. But when the dealer who handles Graton & Knight Leather Fan Belts figures up his year's sales he finds that the Ugly Duckling lays a golden egg.

Graton & Knight Fan Belts are steady, day-in-and-day-out sellers. They have no "off season." They require no special sales effort.

With our quick turnover system you can keep your stock at a minimum, turn it oftener and so make added profits. You carry endless belts for the more popular car only. Roll belting, which is easily cut to fit, for the others. Our handy display rack is a sales-making fixture you will be proud to have on your floor.

Every Graton & Knight Fan Belt has honest quality that guarantees your customers long-term service. Flat, "V" and Link "V" types. Made of the finest leather, specially tanned to resist oil, dust, water and heat. They run smoothly, grip firmly and require little tension.

Send in the coupon today and let us give you the details of our plan for increasing your fan belt profits.



GRATON & KNIGHT

Standardized

LEATHER BELTING

MAIL ME TODAY ←

THE GRATON & KNIGHT MFG. CO., Worcester, Mass., U. S. A.
 Send fan belt information:

101-G

Name.....

Company.....

Place.....

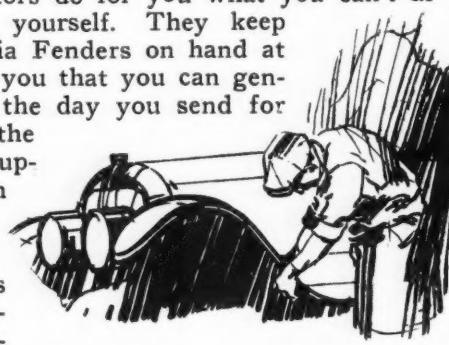
Prices, quality for quality, 5 to 10% lower than the field
 Tanners—makers of belts, straps, packings, fan belts, lace leather, etc.

This is a labor-saving, profit-building business!

FOSTORIA FENDERS open new and tempting channels of money making, minus all the labor and trouble and disappointment that follow in the wake of the hammer.

Fostoria distributors do for you what you can't afford to do for yourself. They keep stocks of Fostoria Fenders on hand at a center so near you that you can generally get them the day you send for them. They save the delays attendant upon ordering from the car factory.

Fostoria Fenders are exact duplicates of the fenders they replace—in appearance, weight, size, workmanship, and finish. And they come to you all jigged, ready to go on.



REPLACE DAMAGED FENDERS With FOSTORIA Quality FENDERS		
Ample Stocks of Replacement	Fenders for Immediate Delivery	
HUPMOBILE	BUICK	STUDEBAKER
CHANDLER	CADILLAC	JEWETT
JORDAN	ESSEX	OLDSMOBILE
DODGE	NASH	CHEVROLET
WHITE TRUCK	YELLOW CAB	
FOSTORIA FENDER DISTRIBUTORS FOR SALE HERE FOSTORIA FENDER DISTRIBUTORS		
Manufactured by THE FOSTORIA PRESSED STEEL COMPANY, FOSTORIA, OHIO, U.S.A.		

They make money for you—a generous discount on the sale plus your labor charge for installation—and there are no come-backs and complaints.

THE FOSTORIA PRESSED STEEL CO., Dept. B, FOSTORIA, OHIO

Write for Fostoria Wall Chart that gives list of Fostoria Distributors and helps make new fender customers.

The Fostoria Pressed Steel Co.
Dept. B, Fostoria, Ohio.

Please send me in special mailing tube, without folding, the Fostoria Fender Wall Chart.

Name _____

Address _____

City _____ State _____



We may want a distributor in your section. Maybe it is you we are looking for. It won't hurt to find out. Write and ask for details of distributor plan.

Replace with
FOSTORIA FENDERS



This symbol means that Studebaker prices do not include the profit of outside body-makers

"Dependable" has become a trite word in the automobile vernacular. But according to Webster it means trustworthy and reliable, and these above all things are the outstanding characteristics of Studebaker cars. This is one reason for the remarkably low divorce rate in the Studebaker family.

THE STUDEBAKER CORPORATION
OF AMERICA
SOUTH BEND, INDIANA

THIS IS A STUDEBAKER YEAR

June 11, 1925

STUTZ MOTOR CAR COMPANY
OF AMERICA, INC.

INDIANAPOLIS, IND., U.S.A.
CABLE ADDRESS "STUTZ"

June 3, 1925



DIRECTORS
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CHARLES SCHWAB
MICHAEL WEATHERBEAT
WILLARD A. MITCHELL
WALTER C. JAHNKE
ANTHONY CASSIDY
FREDRICK E. MOSKOVICS

Mr. John Martin,
Martin Motor Sales Company.
San Francisco, Calif.

Dear Mr. Martin:

If you could only have been here last week to meet with many of our known there would be no need of answering your letter.

Stutz dealers in one of the most constructive dealers meetings I have ever known before this intimate little meeting indicated the great, moving spirit of cooperation which is bound to make a success of this Stutz proposition, and reiterated their determination to build Stutz into one of the most substantial automobile companies in the world. They appreciate, as well as I do, that this success is only possible by making successful dealers.

In twenty odd years of experience in the great business of making and selling automobiles, I have never known anything like the enthusiasm with which everyone is entering into this great work of which today we see only the beginning.

But I am going to say this to you - right here and right now is an opportunity for dealers of your caliber to realize many of the things for which you tell me you have long watched and waited.

I believe I know both sides of this proposition, and viewing it from your side I find many reasons why you should be interested, and viewing it from the requirements of the dealer. If you will take the time to write me fully regarding your views, I believe you will find we are thinking alike in the important factors of this proposition. I trust you will feel free to take me into your confidence as without confidence in each other we can get absolutely nowhere.

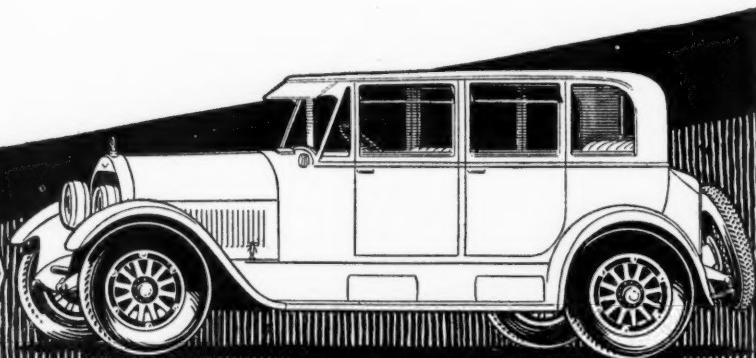
Very truly yours,

FREDRICK E. MOSKOVICS
STUTZ MOTOR CAR COMPANY OF AMERICA, INC.

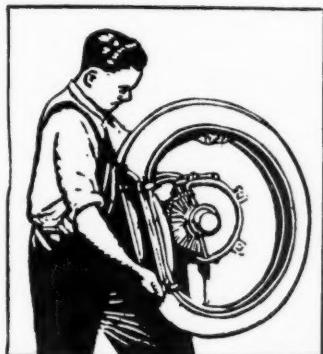
F. E. Moskovics
President

Only the name and address have been changed on the above letter from our files. Consider it addressed to YOU. I will be glad to give personal attention to YOUR reply.

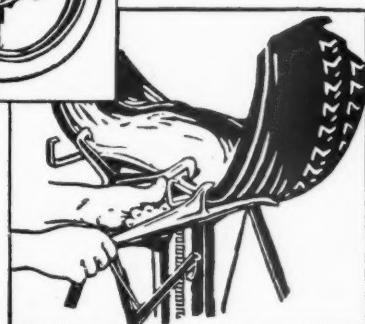
FREDRICK E. MOSKOVICS
President
STUTZ MOTOR CAR COMPANY
OF AMERICA, INC.
Indianapolis, Ind.



Patching tires is just matching pennies!



The buffing plate not only keeps the casing spread at the point where the break is located, but it also provides a flat support for the actual buffing process. This feature alone is an immense advantage.



For extra heavy casings, a hand tool is provided. By applying it as shown, heavy beads can very quickly and easily be drawn down into position to permit hooks of the buffering plate to be applied.



*Ask your Jobber's Salesman
he's a WEAVER salesman too!*

ADV. PICARD-SOHN, INC., N. Y.

You don't make money out of patching tires. It's just matching pennies, because you can't really charge the *time* it takes, much less show a healthy *profit*.

The worth while tire service profits come from vulcanizing, and in such work you need a good tire spreader.

The Weaver Spreader handles balloon tires as easily as motorcycle casings. A foot lever controls the spreader, which, when released permits the casing to be revolved to the next point of inspection. The rollers are automatically drawn down flush with the face of the buffering plate as the tire is spread.

When the break is located and the buffering plate applied you can carry the spread casing right to the buffering wheel for removing fabric and cleaning the rubber.

It makes many a new tire sale. With it you can show customers when old tires are not worth repairing.

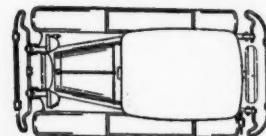
Weaver Mfg. Company
Springfield, Illinois, U. S. A.

Weaver Canadian Co., Ltd., Chatham, Ontario

WEAVER TIRE SPREADER



There is interesting literature about it you can have for the asking....ask!



The outward curve of WEED Bars gives added shock-space and allows room for spares. Yet the curved ends sweep inward for good appearance and to prevent interference in driving.

WEED

right-height fittings

—place bars at the correct Bumper Line

What's the use of a bumper that slips over the one on the car ahead or under it. There's a right height for bumpers—established by the Society of Automotive Engineers.

**a great improvement that is
selling thousands of bumpers
for WEED DEALERS**

It's one out of many selling points for WEEDS. WEED Bars are correct length, properly curved to prevent hooking. They combine deep shock space between front and rear bars with compactness—for close work, for ease in parking.



WEED Sentry Three-Bar No. 3000—an unusually wide and beautiful bumper for heavy cars
Meets bumper types that are off the bumper line

WEED Bumpers, even those on light cars, like the Ford, meet other bumpers on this line.

The result is improved appearance as well as improved protection—a selling point you cannot afford to overlook.



WEED D-25, No. 2008—the best looking correctly designed bumper at a medium price

And WEED Fittings are strong, simple, easily installed. Prove it. Order the front and rear bars we recommend for the type of car in which you are particularly interested. Install them. Study WEED Design. You'll SELL WEEDS from then on. Try it.

**AMERICAN CHAIN COMPANY, Inc.
BRIDGEPORT, CONNECTICUT**

In Canada: DOMINION CHAIN COMPANY, Limited, Niagara Falls, Ontario
District Sales Offices: Boston Chicago New York Philadelphia Pittsburgh San Francisco

WEED BUMPERS

Sensible protection—fore and aft

MOTOR AGE

Vol. XLVII

Chicago, June 11, 1925

No. 24

Summary and Index of Important Events in This Week's Automotive News

*Detailed Stories from MOTOR AGE Staff Writers and Special
Correspondents Appear in News Section Beginning on Page 32*

N. A. C. C. votes to join N. A. D. A. in series of 125 sales congresses. Re-elect Clifton president. Page 32.

June expected to record slight decline in production and sales. Page 32.

Makers organization planning possible business invasion of insurance field. Page 32.

U. S. Supreme Court holds cooperative practices of trade associations to be legal, three justices dissenting. Page 33.

Dealers' orders received by Franklin absorb factory output through July and half of August. Page 34.

World production of Ford cars and trucks now averages slightly above 8,125 daily. Page 35.

McCord Radiator & Mfg. Co. takes over National Radiator & Mfg. Corp.; National to be operated intact for time being. Page 33.

California motorists will save \$13,000,000 by Governor's refusal to sign increased tax bill. Page 42.

Rochester association seeks remedy for relieving downtown traffic congestion. Page 42.

Iowa rural dealers report better business than city agencies for April and May. Page 39.

National bus association to be formed at Chicago during meeting to be held June 17-18. Page 39.

Demand for truck and bus tires shows no let-up. Page 39.

Camels as means of transportation doomed as wealthy Arabs take to American automobiles. Page 39.

Good crops in southeast gives industry optimistic outlook. Page 38.

Fish hatcheries, political henchmen receive part of gas tax paid out in 1924, says A. A. A. in statement made after exhausted inquiry. Page 36.

Government is assailed for failure to provide adequate help for aircraft. Page 36.

Sustantial progress is made in reduction of accidents between automobiles and trains at grade crossings. Page 36.

Jordan wins capital prize at annual California Valencia Orange Show. Page 36.

Firestone may grow rubber on large scale in Liberia. British restriction on rubber is reason. Page 37.

Gardner adds five-passenger six-cylinder sport sedan to its line. Price is \$1,895. Page 37.

Akron balloon tire production now 50 per cent of total output. Page 37.

1925 to compare favorably with peak years as regards automotive industry, says Alfred P. Sloan, Jr. Page 43.

President Erskine of Studebaker reports company in good financial condition, demand exceeding production and all plants at full capacity. Page 34.

May production estimated by N. A. C. C. at 404,300 units, a decrease of 4 per cent under April. Page 35.

Ford factory and branches employ total of 161,000 persons. Page 38.

D. S. Eddins is named general sales manager by Olds. Page 38.

In Next Week's MOTOR AGE—A Bill Fixit Story, by A. H. Packer

Used Cars Just Pass Through

Nearly Half of All Vehicles Taken in Trade by Walter M. Murphy Co. Are Sold in 48 Hours, for Which the New Car Salesman Gets a Bonus — How Service Station Helps Make Sales

By ROY ALDEN

OUT of total monthly sales of from 150 to 175 new cars of the Walter M. Murphy Company, Hudson and Essex distributors, Los Angeles, approximately 80 per cent involve trade-ins of used cars, but more than half of the used cars included in each month's business during the current year have been cleared from stock within 48 hours after being received.

In other words, every other used car entering into a new car sale by this Los Angeles dealer is sold without having to be sent through the regular used car department, and without a sacrifice of profit.

Richard F. Carlson, general manager of the Murphy organization, declares that this swift clearance of used cars is obtained by the payment of a bonus to new car salesmen for making "clean sales." "Clean sales" are defined by Mr. Carlson as not only those that do not bring in a used car, but also all sales where the used car is moved within 48 hours at a figure that must not be lower than the actual take-in price.

The bonus is \$15 for all sales of new Essex models and \$25 on all Hudson models.

Clearance Department

A unique feature of the Murphy plan of moving used cars is the operation of a "clearance department." This department is entirely separated from the regular used car department. It is in charge of a manager, whose salary is paid on a pro rata basis by the 25 regular new car salesmen. The salesmen pay an additional small bonus to the manager for each car cleared during the 48-hour limit, but the salary obtained from the sales force is his principal remuneration. While a great many of the used cars moved through the clearance department are sold to exclusive used car dealers in Los Angeles, a goodly percentage are sold direct to the customer. The new car salesmen, stimulated to greater interest in used cars figuring in their sales, by the added bonus obtainable, are on the alert for used car prospects and nearly every man on the force has built up a waiting list for certain makes and models.

"Our bonus plan permits our salesmen to make more money than in the average dealer establishment, and yet it does not call for any greater expenditures for our sales volume," says Mr. Carlson. "Instead of taking losses on our used cars, we give the salesman a definite incentive to move the used merchandise he must handle without bringing it into our regular used car stock. The money we invest in providing this incentive is less than we would have to invest in the used cars if we had to handle them through the usual channels.

"Probably the most interesting feature of our plan is the fact that the salesmen seek to get the used car at a minimum figure, rather than to crowd the appraiser and the sales manager for more liberal allowances, as is commonly the case. The salesman knows that unless the used cars coming in on his sales are bought at an attractive figure, so they can be moved quickly without any loss to



She greets the customer. A charming hostess is always on duty in the salesroom of Walter M. Murphy Co., Hudson-Essex dealer at Los Angeles. If the visitor is interested in the purchase of a car she introduces him to a salesman

the house, he will not be able to participate in the bonus plan. The result is that he makes every effort to get the used car at the lowest possible price."

Such cars as are not moved through the clearance department within 48 hours after being received automatically revert to the used car department, which is manned by a separate sales force.

Can Be Moved Quickly

"We have demonstrated to our satisfaction," says Mr. Carlson, "that used cars can be swiftly cleared if there is an added reward for swift action. Money talks, and it is talking to a mighty good listener in the average good automobile salesman. By having a definite plan of added remuneration for productive sales work on both new and used cars, we have been able to draw to our organization first-class salesmen. What is more important, we are able to hold them."

Each salesman on the Murphy force is required to have working under his direction a junior, or student, salesman. The junior sales force comprises 25 men, the same number as on the regular sales force.

The junior salesman is accountable for his activities directly to his senior team mate, although the house, of course, includes them in all general sales promotion and educational work. He works on a commission that is paid by his senior and amounts to 2½ per cent, or one-half of the allowable 5 per cent commission, on any sale he develops or influences. The junior salesman, with few exceptions, does no closing. He is instructed by his salesman-employer, in accordance with the policy of the Murphy organization, to endeavor to bring prospects to a point where they express a desire for a demonstration.

This Store

Walter M. Murphy, Hudson-Essex distributor at Los Angeles, whose progressive merchandising plans are attracting wide attention



A salesman is always waiting to talk a new car to the service station customer



He makes the appointments for the demonstration and then the senior salesman for whom he works enters into the picture and endeavors to close the prospect.

"We have found the employment of junior salesmen on our particular basis of having them work directly for our regular men, has been productive of excellent results," says Mr. Carlson. "For our regular sales force we want good closers, and good closers are not always found to be thorough prospect seekers. Not that they do not have the ability to uncover prospects in sufficient volume, but they are not inclined to comb the field thoroughly. Further, there are only so many hours in each day, and there is a limit to the volume of business any one man can do single-handed. We have endeavored to systematically arrange the schedule of productive sales work for our regular salesmen so they would not be investing any portion of their time in activity not directly associated with making new car sales. For instance, every automobile dealer realizes the value of following up owners with regular calls. This takes time, but somebody has to do it. Rather than have our regular salesmen make the owner calls, we have them send out their students on this work. The student salesman invariably presents himself as the representative of his superior."

Junior Salesman Hunts Prospects

"There are any number of ways in which the junior salesman fits in. On the delivery of a new Hudson or Essex we assume that there is good possibility of finding warm prospects in the same block where the purchaser resides. A new car in any neighborhood always gains attention and arouses interest. A few days after each delivery, the junior salesman makes a complete canvas of every resident in the block. He may casually remark something about "Mr. Smith, your neighbor, has just purchased one of our Hudsons" and "he seems so well pleased with it we thought he may have aroused the whole neighborhood to the same desire." Either in a semi-humorous or serious vein, the junior salesman, with the proper approach, is given a logical excuse for making the call.

The average experienced automobile salesman will not take the time to make a canvas such as this. Consequently it offers an excellent opportunity for the student salesman."

The Walter M. Murphy Company maintains three different shifts for floor duty. The first shift of six men is on from 8 a. m. to 12:30 p. m. The second shift of the same number of men cover the period from 12:30 to 5:30 p. m. A third shift of four men work from 5:30 to 10 p. m. On the first two shifts one of the floor salesmen is invariably stationed on the service floor. The Murphy organization has found the service department a highly prolific source of prospects, and it vigorously prosecutes its "back door" selling campaign.

Customer Greeted by Hostess

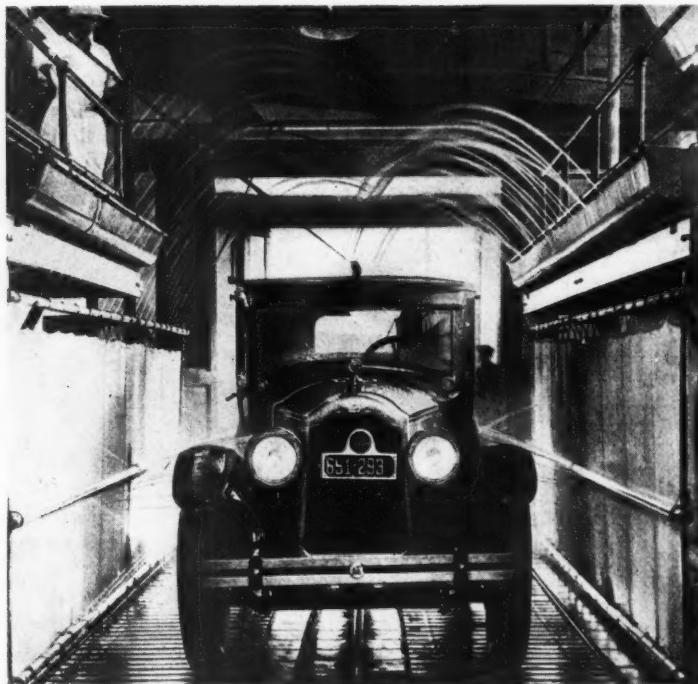
Every person entering the new car sales floor of the Murphy building is first greeted by a young woman, distinguished for her personal charm and pleasing personality, and yet possessed with practical business sense. She serves as the house greeter, or hostess. No salesman approaches the visitor until after the hostess has greeted him and inquired as to his wishes. If the caller indicates he is interested in the purchase of an automobile, the hostess summons the salesman who is "first up," and introduces them.

"This is Mr. Haverson," she says, adding, "and your name is—?"

"We are thoroughly sold on the hostess idea," says Mr. Carlson. "It takes the cold commercial chill out of the automobile salesroom, and places the prospect in a calmer and more receptive frame of mind. The prospect is not bounced on in our salesroom when he enters as if he is the first one we have seen in an age. He is given prompt attention, but in a more dignified manner."

"All visitors, whether they come as prospects for a car or on any other mission, are accorded every courtesy. If a caller indicates to the hostess that he is not interested

(Continued on page 16)



First stage on conveyor line. Car is being sprayed from above, below and at the sides



Car interior being cleaned preparatory to being placed on conveyor

Cars Are Washed in 12 Minutes

MODERN and comprehensive equipment and an adequate personnel which make for quick service is the predominating characteristic of the automobile laundry operated in Chicago by the Cunningham Company. Operating regularly during the hours of 8 a. m. to 10 p. m., the laundry has a capacity of one passenger car every 14 minutes. During the afternoon and evening when the full shift is on duty a car can be placed on the rack approximately every 1½ minutes and is ready for delivery to the owner 11 to 12 minutes later.

The equipment used was designed and patented by the Cunningham brothers who also operate on the same lot a large battery service station, a filling station, grease rack, a storage garage and accessory store. These various enterprises occupy three buildings, the laundry being housed in one side of the storage garage building, the capacity of which is 60 cars. For the convenience of patrons the laundry is equipped with rest and waiting rooms and the conveyor line layout is such that owners can watch from the side lines the actual progress of work on their cars during its journey through the various washing processes. The conveyor line proper on which the actual laundering is done occupies the extreme lefthand portion of the departmentized building. The total length of the conveyor line is approximately 200 ft.

Sequence of Operations

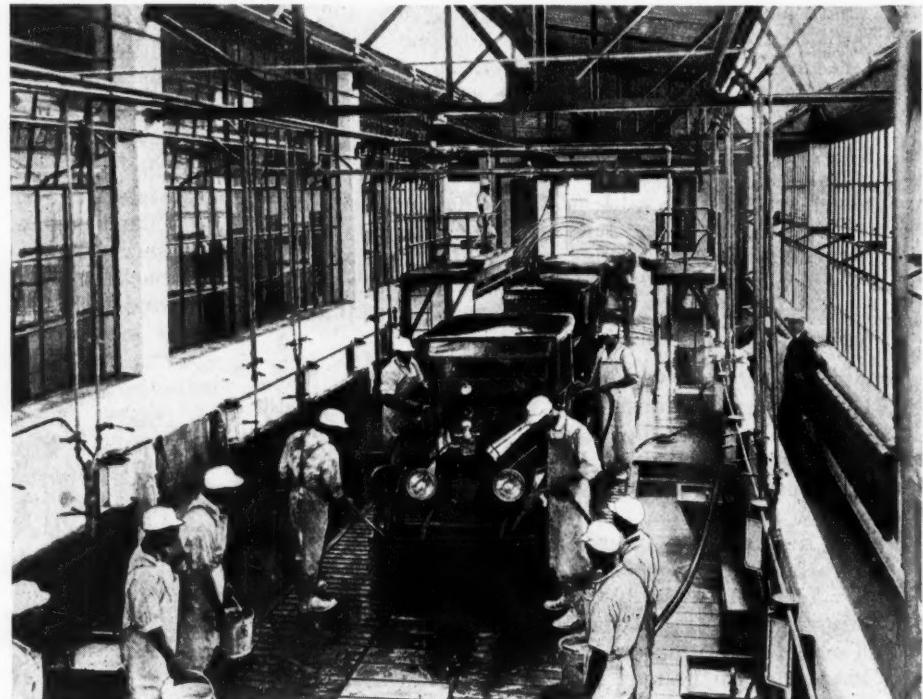
The disposition of the equipment and employees is such that the car in going through the laundry is treated in much the same manner as a chassis undergoing

progressive assembly in a modern manufacturing plant.

When working with full shift there are 32 persons assigned to the laundry exclusive of the attendant. The disposition of these 32 people and their definite duties are best understood by following a typical car through the laundering process.

The front doors giving entrance to the

rack are electrically operated. After the car enters the building the attendant who also functions as cashier determines the owner's wants. If the car is a coupe or sedan the charge for washing which is \$2.25 is paid to the cashier who gives the owner a claim check, the duplicate of which is attached to the car. The owner is now free to enjoy the rest rooms or he may go to the runway parallel to the



Compressed air and soap water are used to give preliminary running gear cleaning

conveyor line and watch the progress of his car.

The car is started through the process, in the sequence as listed below.

1—A negro woman attendant cleans the interior of the car with compressed air jet. When cleaning has been finished she raises the hood and places a waterproof tarpaulin over the ignition unit and wiring. The car is then pushed on to the conveyor.

2—Car on conveyor passes through the preliminary or soaking process consisting of about 15 feet of water spray directed on the top, sides and running gear.

3—While conveyor is traversing the 15 feet of spray the woman who cleaned the interior takes up the duty of washing the car top. During this operation she is stationed on an overhead platform from which with a long handled brush she washes top and visor.

4—Entering the second stage of the process the car is conveyed to the first group of four washers, two on each side. These men use clear tepid water and sponges and it is their duty to take care of the body, side curtains, top of fenders and sides of the superstructure.

Reaches Second Stage

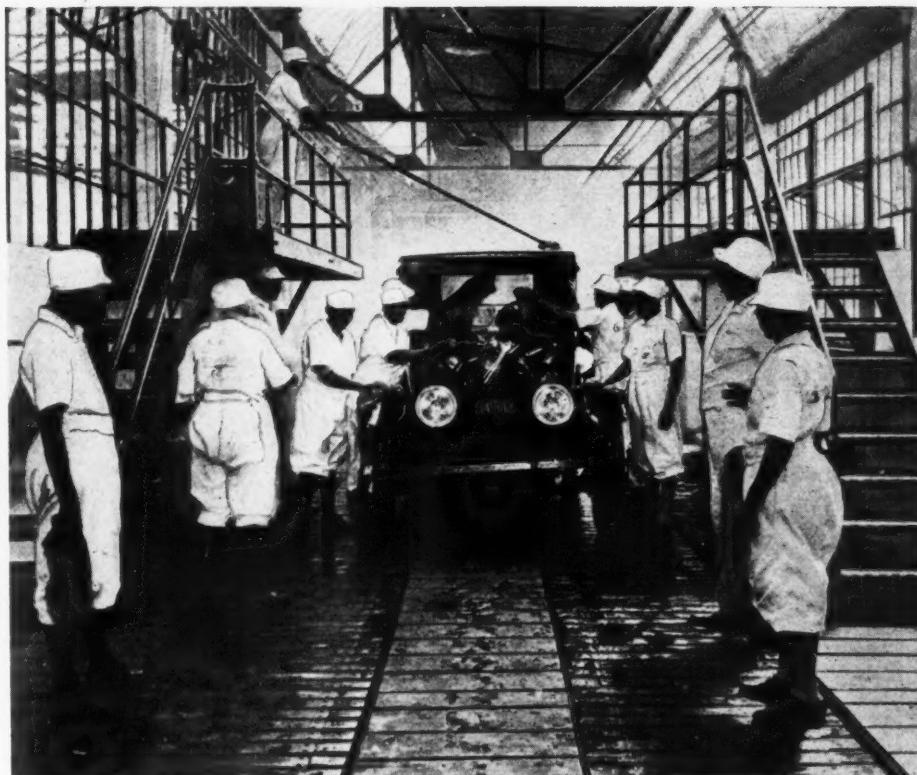
5—By the time body washers have completed their work conveyor has brought car to the second stage where another group of four men, two to a side, apply themselves to the preliminary cleaning of the running gear. This cleaning is accomplished by the use of an air and water jet with which each man is equipped. The air pressure in the jet is 80 pounds with just enough water to give it a body. All loose mud and tar under fenders and on running gear is removed at this stage.

6—The car moving slowly has by this time reached the next wash group where another gang of four men apply the finish cleaning to the running gear parts, underside of fenders and all places which were previously washed with the jet process. A warm solution of kerosene and oil soap in combination with the usual sponges, serve to give the finish cleaning to these parts which are afterwards rinsed with clear water. Coincident with this operation the top is being dried by a girl stationed on another overhead platform alongside the conveyor line.

7—All washing has now been completed and as the conveyor moves the car rearward, it passes into the hands of a group of 16 negro women. These women chamois the body, wash and dry the windshield, side curtains, lamps, and metal fittings.

8—By this time the car is at the end of the conveyor and is now placed on a turntable where the foreman inspects the job to see that laundering has been properly executed. His assistant, equipped with clean chamois and cloths, applies the final touches to those places that might have been overlooked by the washers and driers along the conveyor line.

9—The turntable is used to position the car for exit and when everything has been checked, and the tarpaulin removed,



Car interior and exterior are dried by a corps of women using chamois

the foreman delivers the car to the front of the building. The owner presents his claim check to the attendant and is on his way.

Extensive Equipment Used

The views shown give a general idea of the washrack layout but there are in addition several pieces of large equipment not shown. The volume of business is such that two 1,000 gallon tanks are required for mixing of the kerosene soap solution. Two oil burner heated boilers are necessary to maintain the water at the correct temperature. Two Chicago pneumatic 7½ x 6 in. air compressors

furnish the air supply. The 150 ft. conveyor, built to the design of the Cunningham brothers by the Weller Manufacturing company, is driven by a 7½ horsepower motor operating at 1,650 r.p.m. through a reduction unit giving a ratio of 228 to 1. The linear speed of the conveyor is adjustable by the foreman through the medium of the variable speed motor. A full sized rotary wash tub, and a centrifugal drier provide a laundry within the auto laundry which is sufficient to take care of the chamois and wiping cloths and in addition supply each employee with a fresh white uniform every morning.

25 Years Ago In the Automobile Industry As Recorded In MOTOR AGE

(From MOTOR AGE, June 14, 1900)

New York Automobile Show

NEW YORK, June 11.—Floor plans and invitations for applications for space were sent out on June 1 for the show of the Automobile Club of America, at Madison Square Garden, November 3 to 10, under the management of Frank W. Sanger.

The center oval, containing some 10,000 square feet, will be surrounded by a broad dirt track, 20 ft. wide, and will be reached by a bridge from the Madison avenue entrance. The main aisle will be ten feet wide and the two parallel aisles seven feet. In addition to the ground floor space the north gallery on the 27th street side will be floored so as to give booths for some 20 exhibits. Spaces on the main aisle will rent for \$1.25 per square foot and in the side aisles for \$1 a foot.

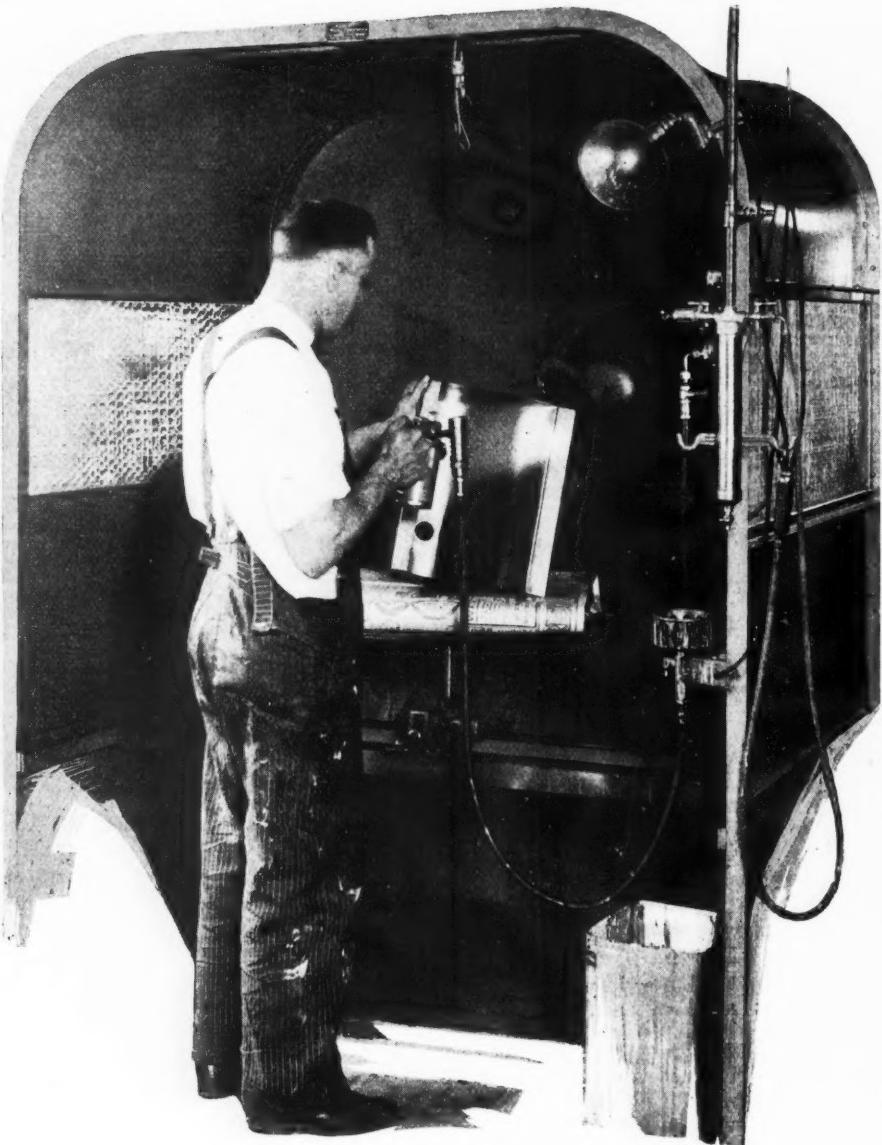
Already over 6,000 square feet of space has been included in the applications received. The spaces will be allotted on June 18th.

Locomobile Improvements

The Locomobile Co. of America, have added a great number of improvements to their Locomobile, among which are:

Tanks: The water tank will hold 50 per cent more water, namely: 25 gal. The gasoline tank will hold between six and seven gallons and both gasoline tank and air tank have been made heavier and stronger.

Engine: The engine has been greatly improved and made heavier and stronger, the bearings enlarged and the balls removed from the eccentric bearings. Cross head supported on both sides.



What the Pyroxylin Finishes Are

The First of a Series of Five Articles Dealing With Lacquer Materials and Their Application to Motor Vehicles

By B. M. IKERT

EVERY automotive dealer, service station, paint shop and garage has at its command now painting materials and methods many times faster than those of a few years ago and which meet the requirements in every way of a first-class paint job.

The actual application of the new nitro-cellulose finishes is quite simple, but in order to secure a good job it is very necessary that the workman observe some points which are not associated in general with ordinary paint systems. Because a man might be a first-class painter is no sign he can immediately do a first

class job with lacquer finishes because of the different nature of the materials and methods of application.

Therefore, before anything is said of the methods of application it first becomes necessary to have a knowledge of the materials, something of the chemistry behind them.

The most commonly used form of cellulose in the lacquer industry is cotton in one form or another—though of course cellulose in other forms may be used. Cotton affords the most uniform and easily handled raw material for the nitration process. Raw and nitrated cot-

MEANING OF SOME OF THE TERMS USED IN CONNECTION WITH THE NEW FINISHES

Cellulose—An inert substance forming the chief part of the solid framework of plants, ordinary wood, paper, etc.

Lacquer—A varnish consisting of a solution of shellac in alcohol.

Any varnish with resin as a base.

Nitro-cellulose—Formed by the action of nitric acid on some form of cellulose, especially cotton.

Pyroxylin—A substance of similar composition as gun cotton obtained by nitrating cellulose.

ton look very much alike, feel much alike and seem to be of about the same strength. There is a simple test for finding out which is which. The only apparatus needed for this test is a parlor match plus plenty of elbow room, for the nitrated member of the family represents confinement! A piece of ordinary cotton when lighted burns readily but takes some time to be completely consumed. The burning of a piece of nitrated cotton is, however, a considerably more speedy operation—an instantaneous flash and it is gone.

A second and equally striking difference between raw cotton and nitrated cotton is in their solubility in acetone. A piece of raw cotton suspended in it remains unchanged—and will remain unchanged permanently. A similar amount of nitrated cotton begins instantly to dissolve and in a few moments it is completely dissolved. This is the simplest form of nitrocellulose lacquer—namely, one grade of cotton dissolved in one simple solvent (acetone).

In Three Groups

Nitrated cottons fall roughly into three groups: artificial leather cottons containing 11.5 to 12 per cent nitrogen, lacquer and film cottons containing around 12 per cent and explosive cottons ranging from smokeless powder containing 12.6 per cent to military gun cottons containing 13.2 per cent nitrogen. The maximum theoretical nitrogen content possible is 14.2 per cent, but this yields a compound too unstable for use.

The solvent used is equally as important to the character of the lacquer films as the nitrocellulose itself, and these solvents fall into two classes—low boiling solvents such as acetone, ether, alcohol, etc., and high boiling solvents such as amyl, butyl and other acetates.

Most lacquers are supplied in a heavier viscosity than is practical for use and they require added thinners to reduce them to a workable viscosity. The type of thinners or diluents added is highly important as it is easily possible to spoil a properly balanced lacquer by the addition of the wrong thinner. Each type of lacquer requires thinners of a definite balanced composition for the best results and it is therefore advisable to use with any given lacquer the thinner or diluent recommended by the manufacturer of the lacquer. The average lacquers as shipped require approximately equal amounts of

thinner for proper reduction of viscosity so the importance of this recommendation is readily understandable.

Three Additional Types

In addition to the nitrocellulose and the solvents in a lacquer there are three additional types of material. First, the non-solvents or diluents, both low and high boiling, whose composition is varied according to the type of lacquer to be produced. Second, the plasticizers, or "softeners" added to increase flexibility and which fall into two classes—volatile and non-volatile. The former class is represented by such compounds as triacetin, camphor, dibutylphthalate and tricresylphosphate and the latter by castor and other non-drying vegetable oils. The volatile softeners are really extremely slow evaporating high boiling solvents which are counted on to remain in the film in spite of their volatility long enough to insure adequate life. An instance of a "softener" that did not stay put occurred in a large cedar chest factory where several thousand chests were finished with four coats of lacquer, which gave a beautiful full and glossy initial finish. Owing to a slump in the cedar chest market most of these chests were packed up and put in storage. When they were unpacked and looked at several months later there was nothing left of the beautiful finish but a heavy coating of brown dust. The volatile softener had completely evaporated, leaving on the chest nothing but the nitrocellulose and gums of the lacquer in a fine powder.

The third type of material used in connection with the nitrocellulose and solvents in lacquer manufacture is that represented by the various kinds of gums or resins—fossil, natural and synthetic, used to add body and fullness. They comprise in a general way all the gums and resins used in the manufacture of oleoresinous and spirit varnishes.

From this complicated and highly varied list of materials are made the clear nitrocellulose lacquers which in their usual form are not very durable when exposed to the weather—not much more durable than the usual grades of rubbing varnish. The chief cause for this shortness of life is their extreme susceptibility to the destructive action of the

ultra-violet rays in sunlight—this aggravated by the more rapid evaporation of the volatile softeners when exposed to the weather. It is, however quite possible to make clear nitrocellulose lacquers which on outdoor exposure will outwear the most durable oleoresinous finishing varnishes.

As previously stated, the actinic or chemical rays in sunlight are the chief enemy of nitrocellulose lacquer, and remarkable increases in durability are achieved by merely pigmenting these lacquers and thereby automatically shutting out the sunlight—and of course the greatest additional durability is produced by the pigments that shut out the most light.

So much for the nitrocellulose lacquer itself—and now for something about the

HIGH LUSTRE LACQUER FINISH STILL IN THE OFFING

In service work there has been some agitation about the length of time required to get a lustre when using a nitrocellulose paint on motor vehicles. Many paint shops have raised the point that so far as price is concerned they cannot save a customer money when refinishing his car with a nitrocellulose paint because of the time involved in rubbing. Lustre on this paint is obtainable only by a polishing operation and even then is less brilliant than that obtainable with finishing varnish.

The author in this article points to the fact that the future holds the possibility of deep, lustrous lacquers, but for the present they do not exist.

Many car owners seem to think a lacquer finish should be cheaper as compared to the conventional varnishing process, but when it is realized that some 20 hours or so are necessary for the polishing operation, the higher cost of the lacquer finished job will be understood.

building of a complete nitrocellulose automobile finishing system and thereby using to the full the wonderful time and labor saving made possible by the natural high-speed characteristics of these lacquers.

Due to the poor adhesion of many types of nitrocellulose lacquers on flat surfaces and due to the tendency to develop upsetting factors of expansion and contraction, the engineering of a complete nitrocellulose painting system presents far greater difficulties than a typical paint and varnish system. At least this is true in the present state of the art. Ordinary paint systems are essentially laminated structures with each coat stuck to but not otherwise affecting the coats above and below it, whereas a nitrocellulose system corresponds more in structure to an alloy and consequently the inter-relation of the different coats is much more difficult to balance properly.

This accounts for the failure of many

attempts to produce complete nitrocellulose systems and the consequent recommendation by some lacquer manufacturers that varnish type undercoats—preferably force dried—be used under nitrocellulose finishing coats. Where this is done a substantial part of the remarkable time, labor and fuel saving made possible by a complete air dry nitrocellulose system is lost. While it is quite true that most nitrocellulose primers and surfacers lack either adhesion and elasticity or else are too tough to surface properly, it is wholly possible to produce properly balanced materials of this type affording all-around qualities far superior to any varnish type undercoats ever produced.

A Striking Difference

In connection with the use of water on surfacers—either with rubbing block or wet sandpaper—the tremendous difference in porosity or permeability between a varnish type roughstuff and a highly developed nitrocellulose surfacer is very interesting.

After forty-eight hours' immersion the amount of water absorbed by three test panels was as follows:

Panel 1. Bare wood, 25 grams.

Panel 2. Varnish type primer and surfacer, 17 grams.

Panel 3. Nitrocellulose type primer and surfacer, 0.5 grams.

After 30 days' immersion the amount of water absorbed was as follows:

Panel 1. Bare wood, 69 grams.

Panel 2. Varnish type primer and surfacer, 63 grams.

Panel 3. Nitrocellulose type primer and surfacer, 9 grams.

This is truly a remarkable difference. It explains why after rubbing roughstuff all the specifications call for at least an overnight dry to allow the absorbed moisture to evaporate—and why it is safe to begin coating a nitrocellulose surfacer of this type as soon after rubbing or wet sanding as the surface moisture has dried off. What a delight this surfacer would have been to the old-time painter who was always worried by what he called the "suction" of his undercoats. That his worry was fully justified is shown by the fact that the water went through the roughstuff into the wood almost as fast as it did into the bare wood panel. When it is also considered that the resistance to the penetration of moisture by a given paint material varies almost directly with the thickness of the film—and that the total film thickness of the nitrocellulose primer and surfacer coats does not exceed one half that of the varnish type primer and roughstuff coats, the comparative showing of these materials is even more remarkable.

Finishing varnishes have frequently shown premature perishing and scaling over lacquers and this has been due to a number of causes. In some cases the character of the volatile plastic or softener used in the lacquer is the prime cause, as previously noted. In other cases the character of the finishing varnish will sometimes scale off of a lacquer due

(Continued on page 24)

METAL

METAL

The upper illustration shows the laminated structure of the ordinary paint system, each coat stuck to, but not otherwise affecting the coat above or below it. A nitro-cellulose system corresponds more nearly to an alloy and consequently the inter-relation of the various coats is much more difficult to balance.

Used Cars Just Pass Through This Store

(Continued from page 11)

in buying a car, but is just 'shopping around and looking 'em over,' she summons the third man up, rather than the first man. The third man up, is classed as the 'courtesy man'. He knows he can give the caller his time without jeopardizing his position on the 'man up' list."

The Murphy company zealously guards the good-will of the owner, and supplements the calls of the junior salesmen, with form letters, that are sent out at stated intervals.

After a customer has taken delivery of a car, General Manager Carlson sends out the following letter over his signature:

Having had the pleasure of serving you recently in the purchase of an Essex car, we are anxious to know if it is giving the satisfaction you expected.

We would deem it a favor if you would be so kind as to fill in the reverse side of this letter and mail it to us in the self-addressed stamped envelope enclosed.

It has always been the aim of this company to provide for its customers an honest, helpful and efficient service, such as will gain for us their confidence and good will. If you are not obtaining the same splendid results with your Essex car that most of the other owners are receiving, it is to our mutual advantage that this condition be immediately remedied.

Trusting you will favor our Service Department with a call in the very near future, which will convince you of our sincerity in desiring to render you excellent service, we beg to remain

Very truly yours

(Signed) RICHARD F. CARLSON
General Manager

The questions appearing on the reverse side of this letter are:

Is your car performing satisfactorily?

Is our Service Satisfactory?

Have you any suggestions to make relative to our service or the car?

We would appreciate your listing below the names and addresses of any parties you may know that

might be interested in a Hudson or Essex automobile.

Typical of the letters sent out from the service department under the signature of the general service superintendent is the following:

We were very pleased to notice that you have availed yourself of our fully equipped Service Department and trust the the repairs made on your car at that time were satisfactory.

We have taken a great deal of pride in rendering you, and many other Hudson and Essex owners, personal service. All of our employees have been schooled to be courteous. Should you meet with adverse attention you will be doing us a great favor by communicating the facts to the undersigned.

We also wish you would drive in occasionally and take advantage of our free inspection service. You will not be obligated in any way. The best machinery made needs expert inspections periodically in order that it may function properly.

"The efficiency, or inefficiency, of service either makes or breaks the reputation of any automobile dealer today," says Mr. Carlson, "and we carefully guard against any dissatisfied customers being developed in our service department. It is not necessary to do something for nothing to make owners satisfied, but to do their work promptly, courteously and efficiently at a reasonable price."

Advertise Consistently

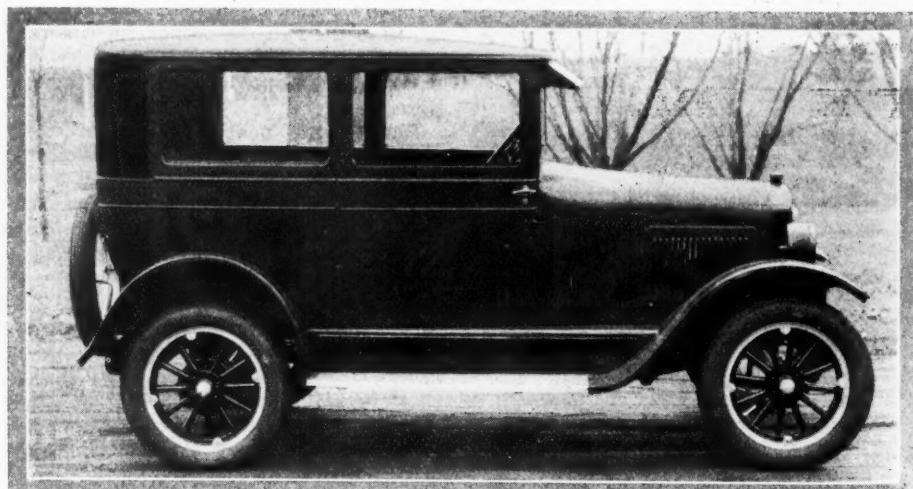
The Walter M. Murphy Company is a vigorous and consistent advertiser. Besides using large newspaper display space, it has developed various forms of so-called "stunt" advertising which have attracted attention. What is considered its most effective publicity stunt is the daily operation of a Hudson and Essex caravan. This caravan consists of an Essex coach, a Hudson coach and a Hudson sedan, painted in striking colors, with the price of each car in huge figures on its side. The caravan starts out from the Murphy building every morning and it keeps going all day, up and down the business streets and in the residential districts. It always proceeds in formation and the lead automobile is equipped with a locomotive whistle.

Overland Has Sedan for Vacationists

In announcing a new two-door Overland closed car on the "91" four cylinder chassis listing at \$655 and known as the Standard Sedan, the Willys-Overland, Inc., expects their latest product to make a strong appeal to vacationists, campers and others who use their cars for daily work.

The car is finished in a deep blue with a double belt moulding effect around the body.

Wide doors permit access to the front and rear seats as well as the accommodations of bulky articles. The front seat and cushions are fitted with a divided and folding back. To convert the interior into a sleeping compartment, it is necessary to remove the front cushion and place it on the rear seat. Laying the backs of the front seats forward and placing the rear cushions on the rubber mat covered floor, comfortable sleeping quarters for two people are obtained.



Side view of the Overland new standard sedan intended to make a strong appeal to vacationists

Auburn Six Line Now on the Market

THE new line of Auburn Sixes is now on the market designated as the Model 6-66. The wheelbase is 120-in.

The engine is a six-cylinder Lycoming, $3\frac{1}{8}$ -in. bore and $4\frac{1}{2}$ -in. stroke, with an S. A. E. rating of 23.44 hp. The crank-shaft is four-bearing type. Oil pressure is regulated by opening and closing of throttle and not by the speed of the engine. Camshaft and water pump are driven by a silent chain drive. The inlet is a Swan type manifold with square turns.

New Emergency Brake Design

The chassis is equipped with four-wheel brakes mechanically operated through an equalizer. Front brakes are of the internal expanding type, completely enclosed and protected from water, mud and ice. Rear brakes are external contracting, giving more severe braking pressure on rear wheels.

Emergency brakes are operated by a pull lever under the instrument board, and the same brakes on the rear axle are used for emergency that are used for service needs.

All models are equipped with full balloon tires on wood wheels, although Smith expanded steel wheels are optional at slight extra cost. The Ross variable ratio type is standard equipment. This steering gear permits fast turns on corners, coupled with practically irreversible gear in mid-driving position.

Distinctive Body Types

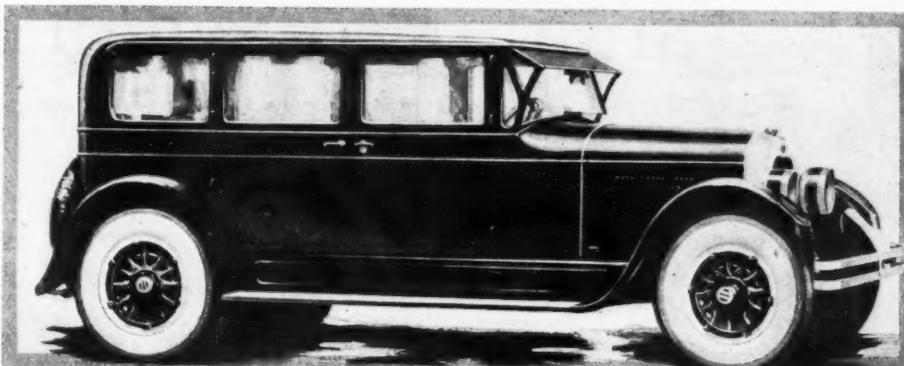
The closed bodies are similar in design to those used on the eight-cylinder line, being finished in lacquer with Brewster windshield, centralized control on steering wheel, all instruments under one panel on the dash, metal roof quarters on top, four extra wide doors and a rear seat 48 in. wide, permitting ample room for three passengers.

The roadster contains room for five persons, three in front and two in the rear. An entrance through a convenient door to the rear seat, eliminates the need of climbing over to get into the rear seat.

Price of the brougham model is \$1595, sedan \$1795 and the roadster \$1495, f. o. b., Auburn, Ind.

New Stutz 6-94 Sedan

The Stutz Motor Car Co. of America, Inc., Indianapolis, Ind., has announced a new sedan in the 6-94 series. The new car, a five-passenger model, is on a chassis with a wheelbase of 120 inches and is powered with the Stutz Six engine. The special windshield construction gives much more room to occupants of the front seat, in addition to affording clearer vision to the driver. The car is finished in Lacqueroid, with a choice of colors being given the purchaser.

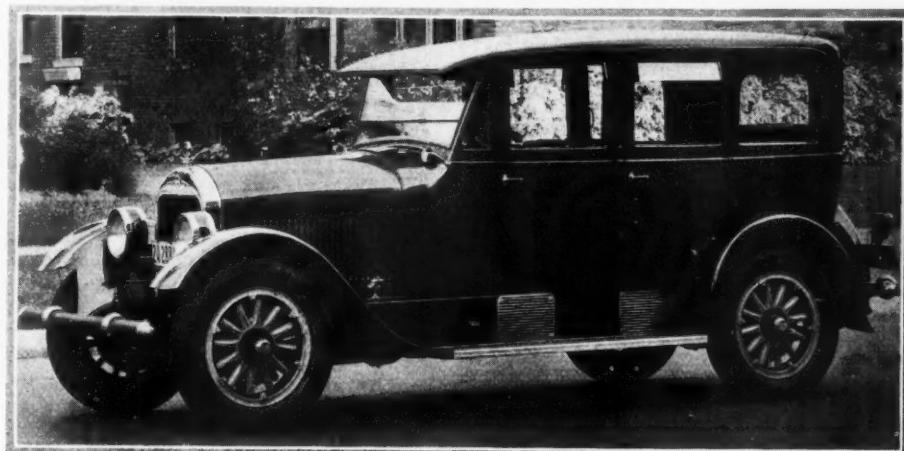


One of the new body models of the Auburn 6-66 line. This sedan sells for \$1795 and is mounted on a 120-in. wheelbase chassis. The closed bodies on the six-cylinder line are similar to those of the eight-cylinder line, being finished in lacquer with Brewster windshield, metal roof quarters, etc.

Rickenbacker Has New Coach-Brougham



New Rickenbacker six-cylinder coach-brougham, a refined and improved edition of the four-door coach brougham. The front seat is 3 in. wider, rear seat is wider and there is more leg room. Although the overall height of the car is not very much it is made to appear still less by use of the belt line moulding which runs the length of the body



The new Stutz 6-94 sedan fitted with a spacious body and windshield which affords good vision. The car is a five passenger model and a rather massive appearance is secured by using fat-spoked wheels with balloon tires and also by use of the balloon type bumpers. A choice of colors is given the purchaser

Reo Two-Passenger Coupe Very Similar to Sedan Model

FOllowing the recent introduction of a sedan listing at \$1645, a two passenger coupe having similar characteristics and the same price as the new sedan model, has just been announced by the Reo Motor Car Co.

Mounted on the standard T-6 chassis, the "G" coupe as it is known, has a straight front seat which is dimensioned to carry an additional passenger when occasion demands. Behind the removable back of the seat permitting access to the rear compartment, is a narrow opening having a hinged cover for carrying parcels, while larger luggage is accommodated in an exceptionally roomy watertight rear compartment. For carrying golf clubs, fishing tackle and other cumbersome articles, a door fitted with a tumbler lock identical to that of the rear compartment has been placed on the right hand side of the body behind the seat. Near the door, a removable section of the floorboards permits easy inspection of the storage battery.

Worsted type of brown shade cloth is used to upholster the cushions, top and body panels, while under the seat, cowl and along the door bottoms brown leather fabric is used. For an additional charge of \$35 the entire interior may be upholstered in two-tone Spanish brown leather.

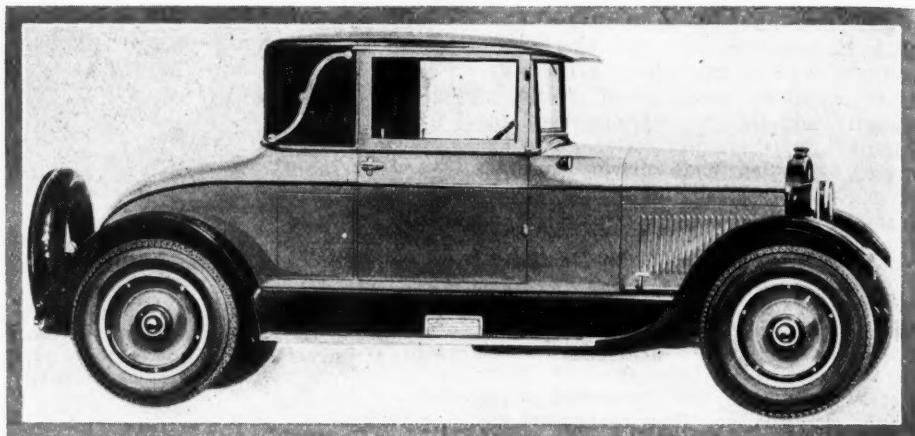
Provision has been made to conduct water due to condensation to the outside of the body, which in conjunction with special weather seals on the one piece adjustable windshield insures the interior of the body being dry under all conditions.

Crank Type Regulators Lift Windows

Crank type of regulators lift the windows which are set in felt lined channels to prevent rattles. Both doors have double catches, while spring wire checks which disappear into the upright pillars limit their outward travel. The instrument board which carries all dials grouped in a cluster is finished in satin silver, the cowl lines, mouldings and window sills are of American walnut.

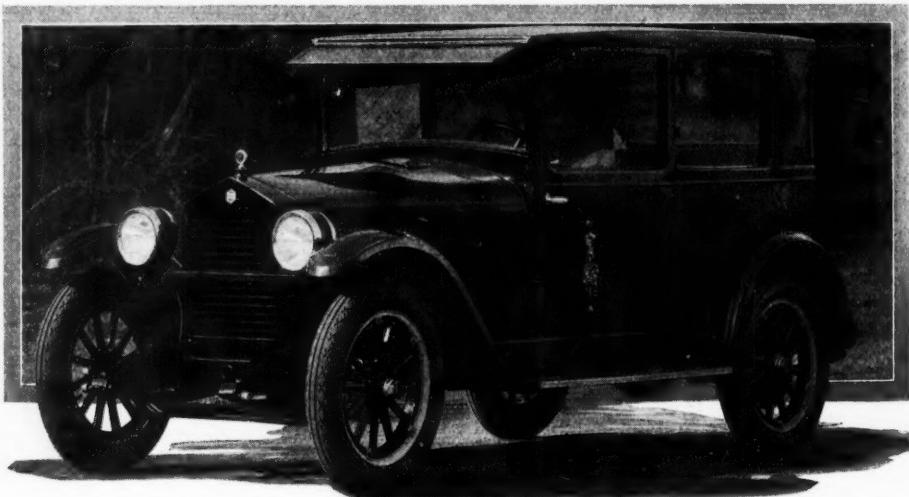
Consisting of a series of heavily padded slats and covered with double texture leather cloth, the sound absorbing top is extended over the windshield to form a visor. Aluminum mouldings prevent water from the roof dripping over the doors.

Equipment included in the list price follows: Adjustable rear view mirrors, mechanical windshield wiper, dome light, cigar lighter, rear window shade, aluminum kick plates, cowl lights matching headlights, and locks to all doors and outside compartments.



The two-passenger Reo coupe which is provided with a large amount of carrying space

Slight Change in Hudson and Essex Coaches



Improvements to give better vision for driving have been made on the Hudson and Essex Coaches by the use of narrower front window posts which are now made of steel instead of wood. This materially reduces the so-called "blind spot" in a closed model where the front pillars are made of wood. The picture shows the decreased width of the front door posts.

Saturday Best Day for Cadillac Prospects

SELLING used Cadillacs is different from selling used cheaper cars, says a company representing this make.

Take advertising used Cadillacs. This company finds that it pays best to advertise them the latter half of the week. This is because most of the men who buy used Cadillacs are in the class that takes Saturday afternoon off. If they see a car advertised Wednesday, Thursday or Friday, the fact is fresh in their minds and when Saturday afternoon comes what is more natural than that they should go and look at that car?

The company believes in using small display ads to attract used car prospects. It gets many buyers for used cars through Cadillac owners.

FORD PRIMER AND CARBURETOR ADJUSTER

A combined priming and carburetor adjusting rod is now standard on all Ford closed cars, and is being furnished without extra cost. Where formerly the driver primed from the instrument board and adjusted the carburetor from the dash beneath, both operations may now be performed from the same accessory on the instrument board.

Some New Automotive Developments

Moon Brings Out Four-Door Sedan

A NEW five-passenger four door sedan at \$1595.00 F. O. B., St. Louis, has just been announced by the Moon Motor Car Company. The body of the new car is mounted on a regular series "A" chassis, has four large doors and is finished in two-tone Duco—dark blue below the belt with light blue above.

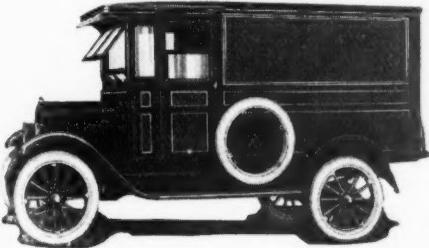
The equipment of the sedan includes four wheel hydraulic brakes, steering gear designed for use with balloon tires which are standard on this car, vertical one piece windshield, sun visor integral with top, dome light and a new head lamp control lever mounted on top of the steering wheel column. The upholstery is in haze blue corduroy, the floor being fully carpeted; the hardware is of plain silver finish.

MARTIN-PARRY PANEL BODIES

MARTIN-PARRY Corporation, York, Pennsylvania, announce an entirely new line of panel bodies. Three sizes are offered: the No. 120—a 58-in. body and the No. 220—a 68-in. body for light commercial chassis; and the No. 320—with 96-in. loading space for 1 ton trucks. The No. 120 body represents an addition to the Martin-Parry line in response to a growing demand for a shorter body with less over-hang and greater accessibility to the load. The No. 220 and No. 320 supersede Martin-Parry previous models No. 180 and No. 260 respectively.

Three types are supplied designated as Type "A", open front; type "B", with hinged vestibule doors, and Type "C", with the new Martin-Parry roller doors. Both hinged and roller doors carry a silent, easily operated drop sash.

The roller doors are supported by ball-bearing rollers and operate easily and smoothly. The top assembly is covered by a black enameled pressed steel weather-shield, which adds greatly to the appearance of the body. The door slides forward, so as not to cover the lettering

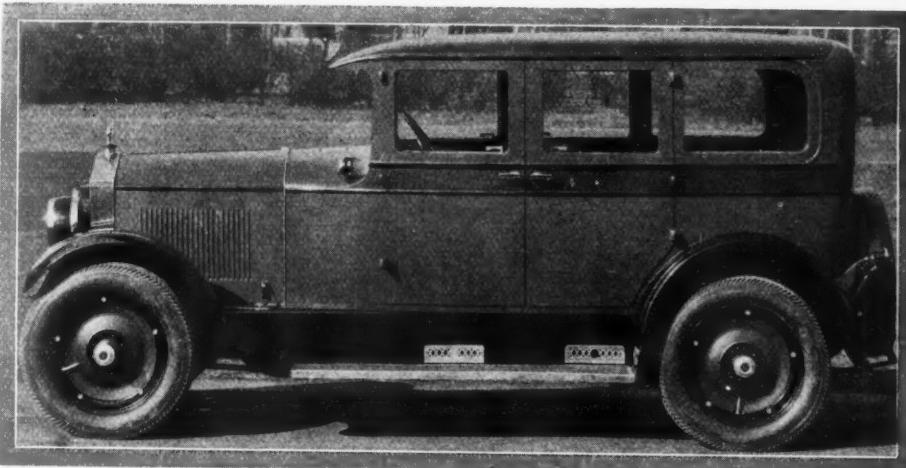


One of the Martin-Parry panel bodies

on the panel. At the extreme open position it does not obscure the driver's vision.

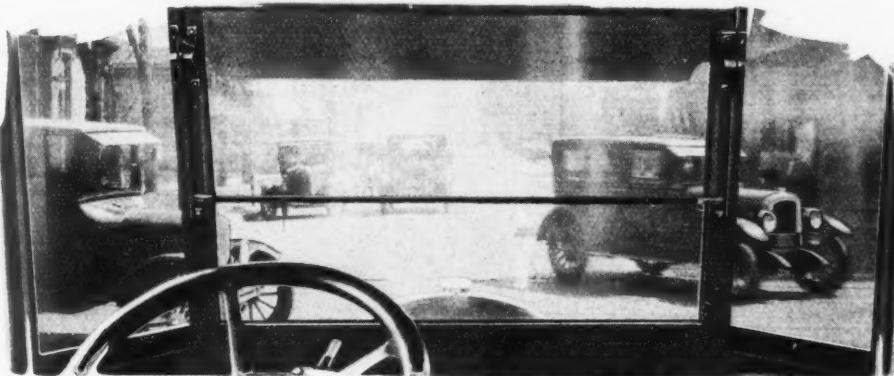
A pressed steel sun visor, attractively ribbed to avoid rattling, and with rain trough, finished in black enamel, is standard equipment on all models.

A heavy duty tire carrier is also standard equipment. The carrier is of



Moon four door sedan, which is mounted on the Series A long-wheelbase chassis and sells for \$1595

Narrow Windshield Posts Help Vision



The windshield posts, although sturdy, on the de luxe cab of the Republic truck, are exceptionally narrow, affording wide vision and elimination of "dead spots." The quarter glasses shown above, also add to the driver's vision

the three arm type, finished in black enamel, and is an integral part of the body, firmly mounted on the base at the left side. On the No. 320 body for the ton truck two tire carriers are supplied—one on each side—to provide for front as well as rear spare tires.

Two optional colors are used on these bodies: Martin-Parry Pekin Green or Martin-Parry Wine.

NEW LINE OF CORDUROY TIRES

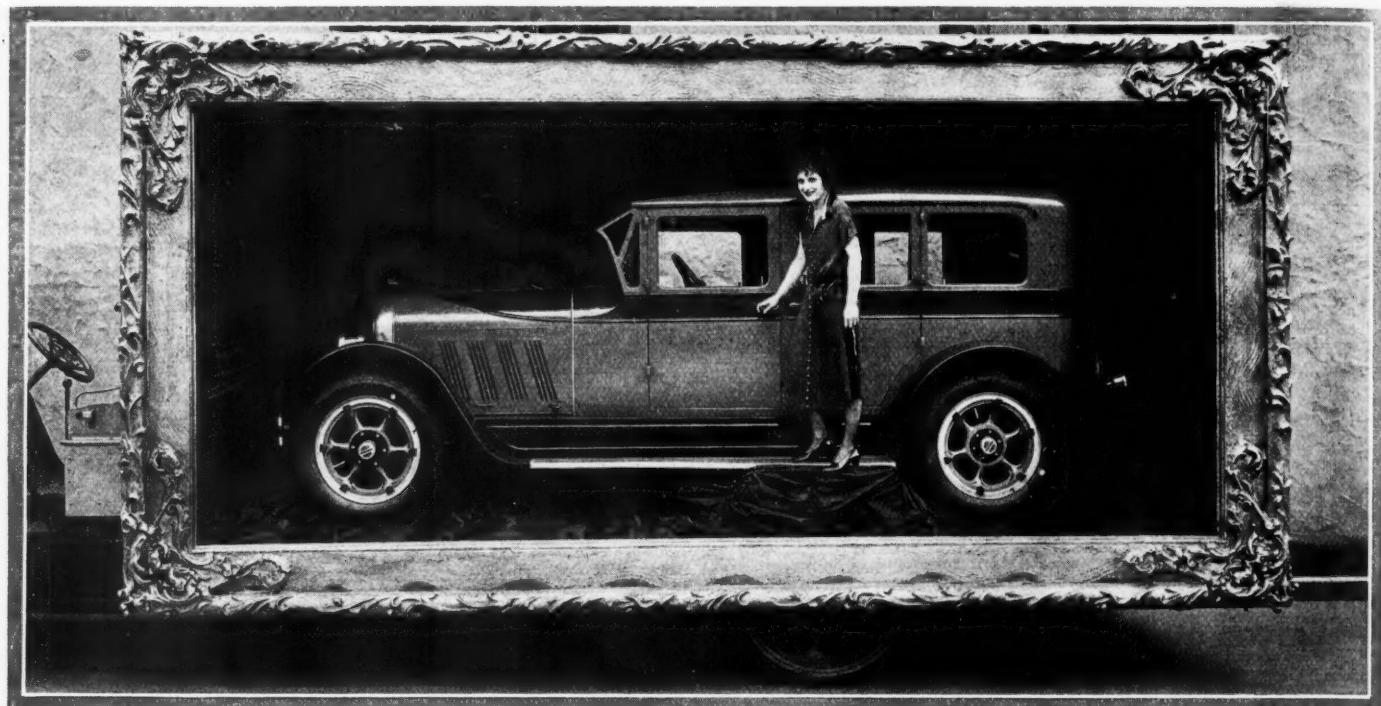
A flattened tread which enlarges the area of contact with the road and a heavy ribbed side wall are the outstanding features of a new line of tires which have been developed by the Corduroy Tire Company of Grand Rapids, Mich. These tires are intended for use in the truck and bus fields. Eight plies are used in all five-inch tires and ten plies in the six-inch sizes. Deliveries are being made on the following sizes:

5x33, 5x34, 5x35, 6x32, 6x36.

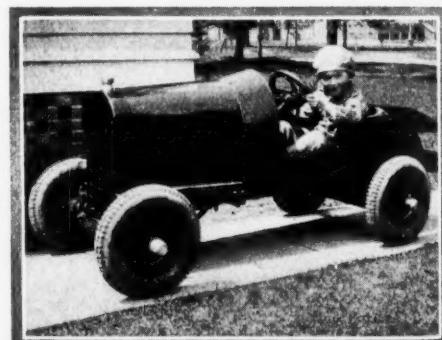


Corduroy tire recently brought out for trucks and buses. The tread is very flat

MOTOR AGE'S PICTURE PAGES



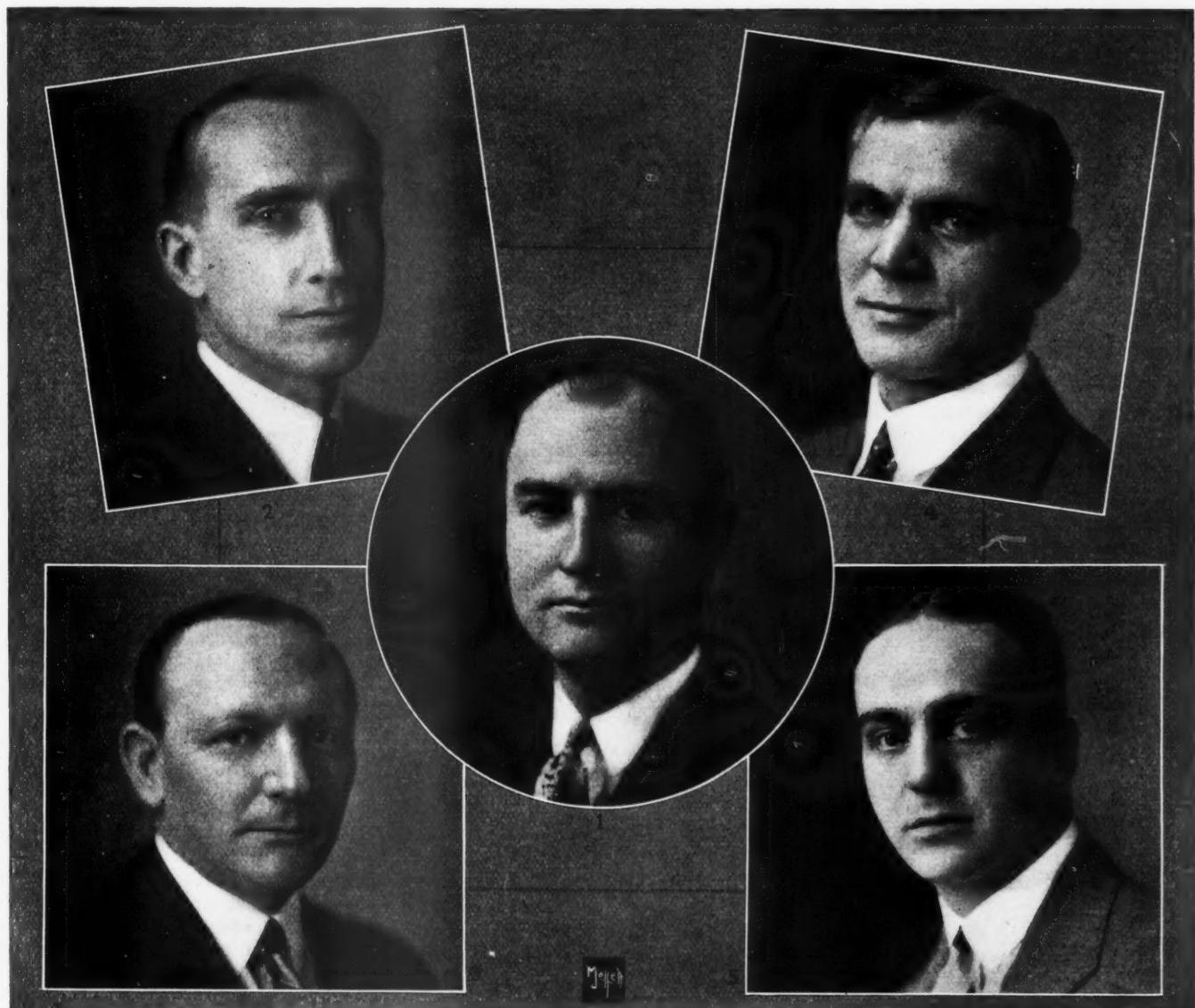
A HOME RUN IN ADVERTISING. The White Auto Co., Auburn distributors in Southern California, placed an Auburn sedan in a huge frame with velvet background on a truck and had it driven around the city. The moving display attracted wide attention.



FOR THE KIDDIES. This car, 32 in. high with 30-in. tread and 60-in. wheelbase, was built by Carl E. Arends, Ford dealer at Kensett, Iowa. It is made of genuine Ford parts, is equipped with 16x3½ cord tires and is owned by Stanton Arends.

AN AUTOMOTIVE ATLAS. Two big solid bales of cotton, weighing 1,000 lbs., carried on the top of a Studebaker Six Duplex-Phaeton by the Benson Auto Co., Austin, Texas, attracted considerable attention. To make the demonstration more striking, five salesmen climbed on top of the cotton, adding 800 lbs. to the load.

OF AUTOMOTIVE INTEREST



NATIONAL BATTERY MANUFACTURERS' ASSOCIATION OFFICERS. They were present at the recent meeting of the association at the Congress Hotel, Chicago, and are as follows: 1, D. H. Kelly, president; 2, R. D. Mowry, first vice-president; 3, P. C. Cole, second vice-president; 4, P. M. Marco, treasurer, director and member of the advertising committee.

MAKING THEM SAFE. "Dad" Cutler, who completed on May 30 eight years of "Silence testing" at the Chevrolet gear and axle plant, Detroit, has approved during that time more than a million axle gear assemblies. His ear has been especially trained to detect noises in the driving gears of the axle. Formally known as Joseph N. Cutler, he is 60 years old and a veteran of the western oil fields and the Klondike gold rush.



Useful Shop Equipment Exhibited at Recent Detroit Show

Time and Labor Saving Tools in Evidence Showing No Doubt of Influence of Flat Rate

On these pages MOTOR AGE presents some additional items of shop equipment which were shown to visitors at the National Automotive Maintenance Show held in Detroit May 20-23. Other items shown there were described in the June 4 issue of MOTOR AGE on pages 24, 25 and 26.

New National Machine Tools

Four entirely new time saving tools specially adapted for Ford cars have been added by the National Machine and Tool Company, Jackson, Mich. N-52 consists of a rear axle emergency shaft which slips into the axle housing, eliminating the necessity of a wrecker in the event of a broken axle. It lists at \$8 without cone or wheel. A transmission bushing driving tool, M-57, adaptable for all bushings, sells at \$5.80. M-58 is another bushing driver for the front drive shaft bushing and lists at \$2. For removing generator brush end outer ball bearing race, a puller known as M-50 at \$4.60 has been added.

Weldit Gasaver

Designed to reduce the consumption of acetylene and oxygen, the Weldit Gasaver has just been placed on the market. It is made by the Weldit Acetylene Co., Detroit, Mich. At the beginning of the day the operator adjusts the correct flame

on the torch and when the new work is being set, jigs turned or welding wire secured, the torch is hung on the horizontal arm projecting from the apparatus. The arm when carrying the torch automatically stops the flow of the oxygen and acetylene. Upon lifting the torch from the arm and passing it over a convenient pilot light maintained constantly at the top of the Gasaver, it is instantly lighted with the same set flame as originally adjusted. In addition, the apparatus is equipped with special valves which automatically close if the torch should flash back, thus preventing injury to the regulators, hose or tanks. Price \$25.

A new model of automatic welding torch incorporating the control operated by the thumb with the hand holding the torch has been added to the line. It is made in three sizes, ranging in price from \$30 to \$45.

Cyclonic Adjustable Wire Brush

In addition to several new portable and bench electric tools which have recently been included in its line, a "cyclonic" adjustable wire brush is now being marketed by the Louisville Electric Mfg. Co., Louisville, Ky. An unusual feature of the new brush lies in the rotating nut at the top of the brush by which increased pressure can be applied so as to contract the wires and thereby increase the cutting effect. It is especially adapted for cleaning motor blocks, carbon, valves as well as rust, paint and sand on castings. The complete brush lists at \$2.50 and can be used in any

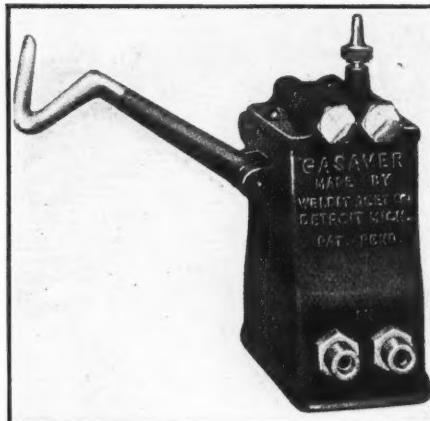


"Cyclonic" Adjustable Wire Brush

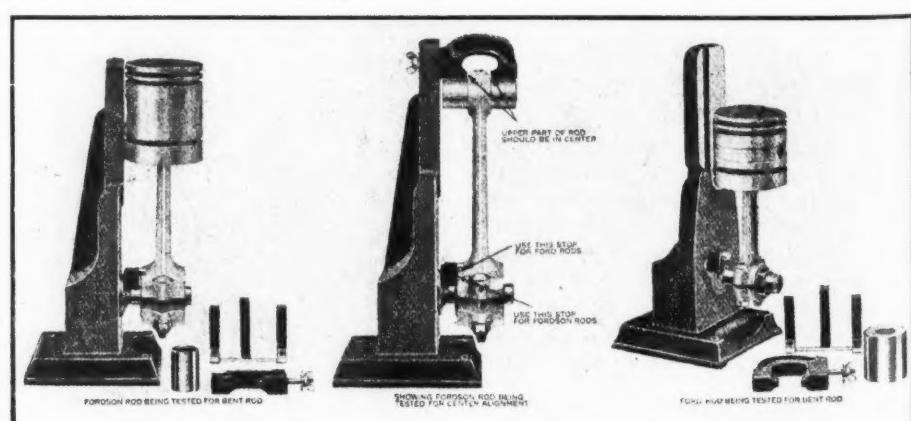
drill or lathe or can be taken to the work in a flexible shaft.

Eagle Aligning Fixture

Designed specially to meet the requirements of Ford service stations, the Eagle aligning fixture made by The Eagle Machine Co., Indianapolis, Ind., is furnished with two patented bushings to fit Ford and Fordson connecting rods. On account of the peculiar design of the bushings, bearings either of standard size or undersize can be handled easily. The square horizontal attachment which is connected to the vertical truing plate, enables bent twisted rods to be detected easily. It will also show rods off center by placing rod bearings against stock located in the stand at the side of the pin. A fixture is furnished to straighten bent rods and may be used in any vise. The height of the gage is 16 inches and weight 30 pounds. The price is \$22.50.



Weldit Gasaver



Ford and Fordson connecting rods being tested on Eagle Aligning fixture

New Shop Equipment Exhibited at Detroit Show

Price-Rochester Charging Systems

A number of improvements have been incorporated in the latest models of Price-Rochester constant potential battery charging systems made by the Price-Rochester Corporation, Rochester, N. Y., chief among these being a series of multiple throw switches mounted on the switch panels enabling quick and easy records to be made not only of every battery but the actual voltage and ampere capacity of each individual cell.

Ever-Ready Aligning Gages

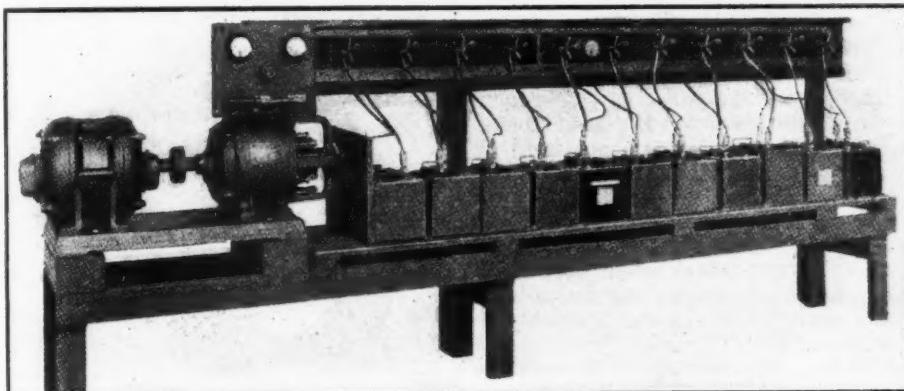
The "Ever-Ready" aligning gage, made by A. Stephens Co., 109 Ripley Street, Davenport, Iowa, does not depend on right angle construction to find defects in alignment. All measurements made on the parts affected are checked on one side and then on the other by reversing the arbor which carries the connecting rod and piston and placing this up against the movable vertical arm, which carries the micrometer gage. In this manner all defects are double checked and the error shown on the dial is twice its actual proportions.

Any rod from $5\frac{1}{2}$ inches long to $16\frac{1}{4}$ inches long or piston between $2\frac{3}{4}$ to $5\frac{1}{4}$ inches in diameter can be checked on the machine. The price is \$60.

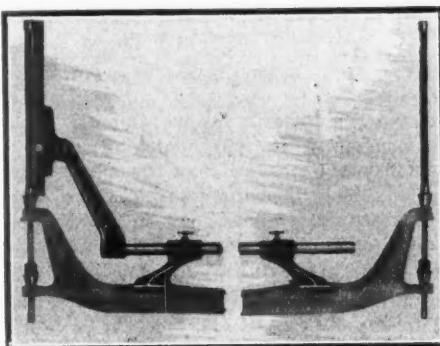
Another "Ever-Ready" product for aligning the front axles of cars, trucks and busses has been added to the line. The gage consists of a tubular member fitted with adjustable castings and a straight edge which is adjustable. The spindle rods are 24 inches long and fitted with one stationary and one sliding cone, the latter having a knurled handle and fitted with a spring lock which automatically holds it in any position it may be set.

Dearborn Burnishing and Running-in Fixture

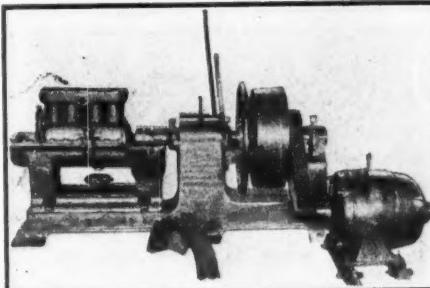
A universal burnishing and running in fixture to be used with the standard U-1 is now ready for the market. It is made by the Dearborn Equipment Company, Kalamazoo, Mich. The new fixture can be used with practically any type or make of engine block and has a sufficient height and bed length variation to accommodate blocks of unusual dimensions. A detachable oil pump for running the bearings in oil is provided, and can be removed during the process of burnishing, thereby making all bearings readily accessible without removing the block from the fixture. The block is carried in an upright position, and brings the crank shaft flange into direct line with the driving head of the machine, thus eliminating any possible danger of distorting or straining the crank shaft. The price is \$90.



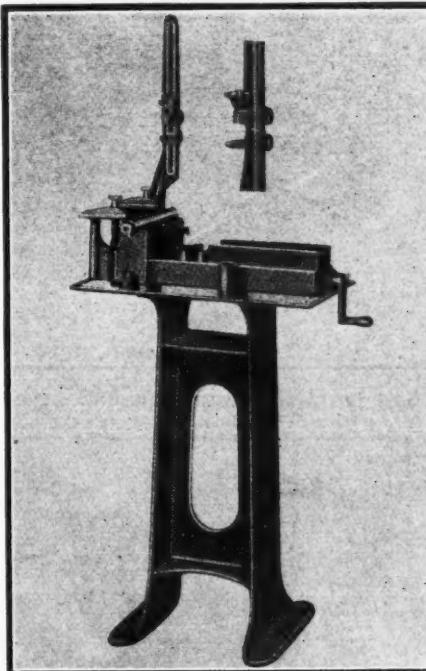
Price-Rochester 2-wire outfit with special bus bar arrangement



"Ever-Ready" Front Axle Aligning Gage



Dearborn Burnishing and Running-in Fixture

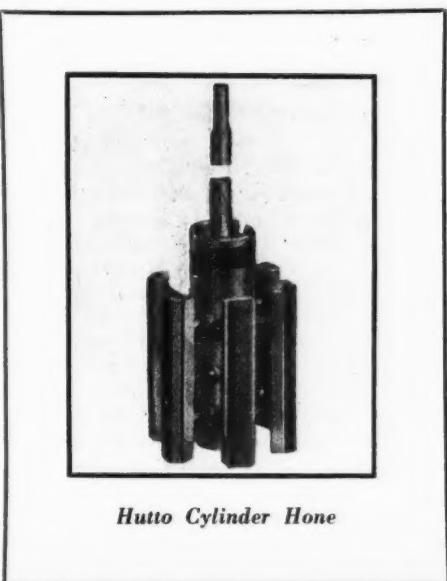


"Ever-Ready" Aligning Gage Which Double Checks Defects

Hutto Cylinder Hone

A new cylinder hone known as the "twin three" grinder now supplements the "single three" grinder which has been made for some time by the Hutto Engineering Co., 515 Lycaste Ave., Detroit, Mich.

Uneven hardness of some cylinder blocks necessitates the removal of more stock when using a "single three" instead of a "twin three" grinder. It is claimed the later model will correct an out of round bore to $\frac{1}{4}$ of a thousandth while the "single three" type holds it to one one-thousand. At the same time the use of six stones instead of three permits of generating a round hole more quickly and requiring the removal of less stock. The new model can be driven from a $\frac{1}{2}$ electric drill, the same as the "single three" grinder. Price \$55.00

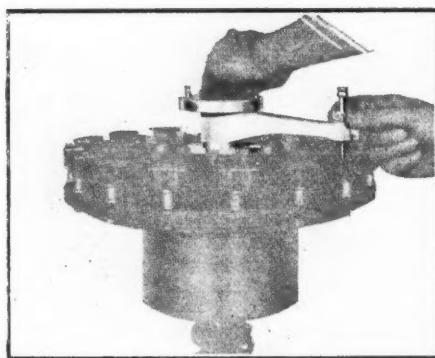


Hutto Cylinder Hone

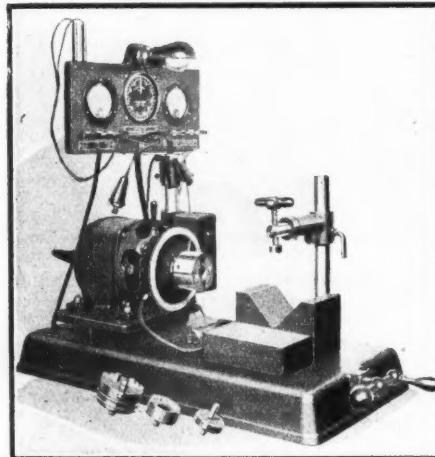
New Shop Equipment Exhibited at Detroit Show

New Allen Electric Products

For checking the gap of the Ford magneto an entirely new gap gage has been introduced by the Allen Electric Manufacturing Co., 2055 W. Lafayette Boulevard, Detroit, Mich. In operation the gage is set on the end of the transmission shaft and the magnets checked for height by revolving the gage around the magnets. To test the air gap which should be .030 inches when assembled, the gage is clamped to the face of the crank shaft while the coil assembly is temporarily held in place. Shims placed behind the coil assembly or beneath the pads are used in connection with the gage for giving the correct adjustment. The price is \$9.50.



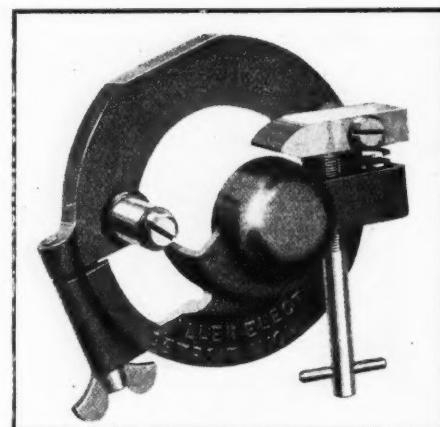
Gage for checking gap of Ford Magneto



Allen bench type stand for testing electrical equipment on Ford and Chevrolet

A universal bench type stand for testing electrical equipment on Ford and Chevrolet units is now included in the Allen line and sells at \$250. This stand can be operated on 110-220 volts, and is fitted with a 60-cycle a. c. current motor. The complete weight is 190 pounds.

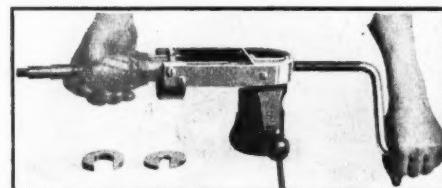
For filing Ford generator and starter commutators, a filing fixture known as Model A-80, price \$7.50, is now on the market. With this attachment it is not necessary to smooth and true the commutators in a lathe, it being possible to true the commutator by using a file carried across the fixture which is held to the generator and starting housings and



Filing fixture for Ford generator and starter commutators

driven from a small test stand electric motor.

Two important improvements have been made in the Allen coil and magneto tester which has been on the market for some time. By using two meters, a constant cranking speed may be maintained enabling the mechanic to adjust all coils alike. The addition of quick acting clamps and spring contactor enable Ford magneto parts to be assembled and tested in a few minutes time. Ten foot lead wires are now furnished so that the magneto can be tested in the car. The price is \$45.



Allen heavy duty bearing puller

Another product is a heavy duty bearing puller specially adapted for use on Ford generators, and selling for \$7.50. The chief advantage of this puller is that it can be mounted in a vise and the use of special "C" washers prevents injury to the most stubborn bearing when being removed by operating the crank mounted in the end of the steel frame.

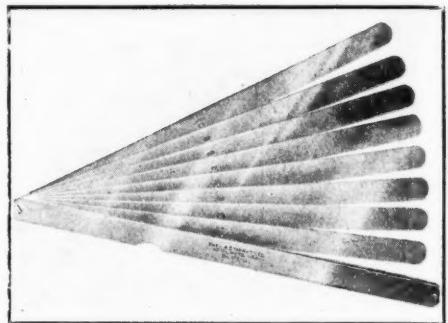
Jacobs Chucks

A new range of chucks known as the "Jacobs Super" with capacities ranging from $\frac{1}{4}$ inch to 1 inch have been introduced by The Jacobs Mfg. Co., Hartford, Conn. The new feature of these chucks is a special ball bearing mounted inside the chuck to take the thrust when hard and constant duty is imposed upon it. A coarser pitch thread insures greater gripping power of the drill in the new chucks. Price \$7.50 to \$25.

Starrett "Feeler" Gage

To determine the proper clearance for fitting pistons after honing and regrinding cylinders, a long leaf thickness or

"feeler" gage has been introduced by The L. S. Starrett Company, Athol, Mass. Eight leaves which are 9 inches long by $\frac{1}{2}$ inch wide, have thicknesses ranging from .002 to .015 inch. A special feature of the "feeler" is the ease with which the leaves can be replaced should they become impaired. The price is \$3.25.



Starrett "feeler" gage

What the Pyroxylin Finishes Are

(Continued from page 15)

simply to poor adhesion and to the wide difference in the factors of expansion and contraction of the varnish and the lacquer. The same condition sometimes shows up when a thin coat of clear finishing varnish is applied over a baked black enamel. Careful rubbing down of the lacquer—allowing overnight for the evaporation of any high boiling solvents still remaining in the lacquer coat plus the use of a very heavy coat of an extremely elastic varnish—or better still the use of two finishing varnish coats of properly interbalanced elasticity will yield the best results. All this is of course predicated on the lacquer being of a type which does not just naturally "shed" varnish.

Lustre on nitrocellulose automobile finishes is at present obtainable only through a polishing operation and this lustre is much less brilliant than that obtainable with finishing varnish in large production and costs heavily in labor.

The future holds the possibility of deep, lustrous, durable, clear nitrocellulose lacquers but for the present they do not exist. However, this deep lustrous finish is about the only quality that a properly engineered nitrocellulose system appears to lack—and this lack may be overcome by the right type of superimposed varnish finish.

Improperly engineered nitrocellulose finishes, however, hold more grief, if possible, than an improperly put together varnish type system, for they can fail suddenly and completely in a manner that leaves nothing to be desired in the way of trouble.

(We are indebted to Mr. L. Valentine Pulsifer of Valentine & Co., Detroit, for much of the information in this article. The second article will appear in the issue of June 18.)

The READERS' CLEARINGHOUSE

Questions & Answers on Dealers' Problems

Readers Tell How to Free Jammed Starter Pinion

Two Readers Agree With Motor Age Opinion

From South Dakota comes this letter "MOTOR AGE, Gentlemen: In regard to the jammed pinion in the flywheel, in the issue of Motor Age dated December 11, 1924, and March 26, 1925, will say that under no condition should the motor be turned backwards, as it will not give the pinion a chance to come out as long as the motor is being turned backwards. As a rule by turning the engine forward the pinion will come out of mesh.—Eggers Garage, Gettysburg, S. Dak."

From Illinois we have another letter which goes more into detail.

"I just read the remarks by Mr. Hooten stating it would break the shaft off of a starting motor to release a jammed pinion by the method suggested by Motor Age. Let me state that the Motor Age method is the only satisfactory method of relieving a starting motor in this case. But always move the motor forward, never allow it to turn backwards, because it will only tighten in this direction. Sometimes it helps to crank and step on the starter at the same time.

"If this does not work, jack up the rear wheel and jerk quickly with transmission in high, if necessary, turn crank at same time. If this fails, put the transmission in high and tow the car at a good speed and let in the clutch. This necessitates the rear axle being in good condition. I have used these methods for loosening a pinion which has been jammed in the flywheel from the time electric starters were first made and it never failed to loosen one, nor have I broken anything in the process.—A. P. Peters, Dixon, Illinois."

This Reader Takes Issue With Us

I wish to register my disapproval of your method of freeing a jammed starter gear. In your issue of March 26th Mr. Hooten gives the right idea—but personally I have never seen a starter shaft broken off in this manner. I have seen a great many badly bent and all teeth stripped from the flywheel for distances of 3 to 12 inches. The shaft can often be bent by endeavoring to crank the car by hand, while the flywheel can easily be stripped by towing the car with a jammed starter. Have never seen it fail when the teeth were cut into rim of flywheel. The steel ring gear on the other hand usually stands up to the detriment of the starter.

When the gear has jammed the flywheel there is no motion of gear or shaft and to try to force the car or engine forward only tends to make the jam more secure. Instead put the transmission in high and push the car backwards, allowing the gear to unscrew on the shaft. If car is parked in such a position that it cannot be pushed backwards a pipe wrench can be used on the end of the Bendix so as to turn it in the direction opposite to the normal direction of shaft. Usually a quarter turn is all that is necessary. Where the Bendix is not accessible the bolts which hold the starter to the engine can be loosened and a vigorous shake will free the pinion.—E. F. Meador, Meador Service Company, Danville, Va.

The above letter is published on account of our desire to be impartial.

Most of the letters received have agreed with the Motor Age explanation while this one and one other do not agree. We still contend that it is wrong to move the car backward in high gear to free the pinion although if a pinion tooth is riding one of the flywheel teeth it is possible that moving the car in either direction may cause the pinion tooth to clear itself in either direction. All of the letters received have indicated that in many cases a great deal of effort is needed to free the pinion.

This indicates an abnormal strain on the starter mechanism and a tendency to bend the shaft. The suggestion brought out in the above letter is accordingly a good one under any circumstances. We refer to the recommendation that the bolts which hold the starter be released. This makes it possible to relieve the pressure between the pinion and flywheel and avoid the necessity of using strong arm methods. One possible cause of misunderstanding in discussing this question relates to the rotation of the pinion as compared to the rotation of the spiral shaft on which the pinion is mounted. If the shaft is turned, it is necessary to rotate it backwards in order to move the pinion away from the flywheel.

On the other hand if the shaft is stationary and the pinion can possibly be rotated it is necessary to move it forward or in the normal driving direction in order to free it from the flywheel. It might be well to point out that the meshing of a Bendix pinion with a flywheel ring gear should be rather loose so that when the pinion is in mesh there is a backlash varying from $1/64$ to $1/32$ inch. This is a sloppy fit which would not be considered correct on other installations, but on a Bendix drive it facilitates meshing and usually prevents troubles of this sort. Where jamming frequently occurs it can be overcome to a great extent if the starter can be moved away from the flywheel a slight amount so that more backlash will exist. Stripping of the teeth from the flywheel has been attributed in the above letter to pulling the car when the pinion is jammed.

We do not believe this is the cause but figure it is due to a tendency to jam which instead of stopping the pinion merely results in milling off the end of one of the teeth. When this has happened a great many times the net result is to apparently strip the teeth from a certain section of the flywheel. The reason the teeth are stripped in certain places on the flywheel is that due to compression in the engine there is a

tendency for the engine to stop in certain positions so that some of the teeth are frequently subjected to attacks from the pinion while others are not subjected to this meshing condition.

Another Opinion on a Pinion

On page 24 of your March 26th issue I have read what Mr. Hooten of Illinois has to say regarding a jammed starter pinion. I can't see where he gets his idea. It is simple enough to see that the motor should turn in the normal direction in order to free the pinion. The pinion is always kicked out or loosened by the normal rotation of the flywheel. I have had experience with several makes of cars and in practically every case overcome the trouble by stepping on the starter crank while someone rocks the car forward while it is in high gear. Up to the present this system has never failed nor has it caused any serious trouble.—Luther Volratte, Seneca, S. C.

Different With Delco Systems

I would like to give my version of Mr. Hooten's comments on "How to Free a Starter Pinion That Has Jammed at Flywheel." He is, no doubt, thinking of the Delco starting as used on Buick and Lincoln cars while the Motor Age answer referred to Bendix drive. With the Bendix drive it is necessary to put car in high gear, back up to take out any slack, then shove forward, jerking on the crank at the same time. This will free 99 out of every 100. On the Delco type I always take the cover off of the pinion or idler and drive it back with a hammer and a block of wood, being sure to oil it up when I get through.—Wm. W. Henry, care of Pioneer Motor Sales Co., Charleston, W. Va.

"Agin" Us on the Starter Pinion Question

In the Reader's Clearing House I read "how to free a starter pinion that is jammed in the flywheel." In my practice as a mechanic, I never have had any luck breaking one loose by cranking the engine by hand. If you put the car in gear and rock it forward and backward, you will find that it breaks loose as the car goes backward. By rocking the car ahead or forward first the recoil in the gear will help you push the car backwards with greater force if you do it fast. The engine has to rotate in the opposite direction to what it would if cranked by hand. If you get one loose by cranking, it is not really jammed, but may be a tight place in the mesh of the flywheel or in the engine which the start has not enough power to turn over.—G. M. Eide, Decorah, Iowa.

MOTOR AGE holds the opposite opinion, that the release is more likely to come from first rocking the car backward and then moving it forward so that the engine turns in the normal direction.

Planning Your New Building

By TOM WILDER



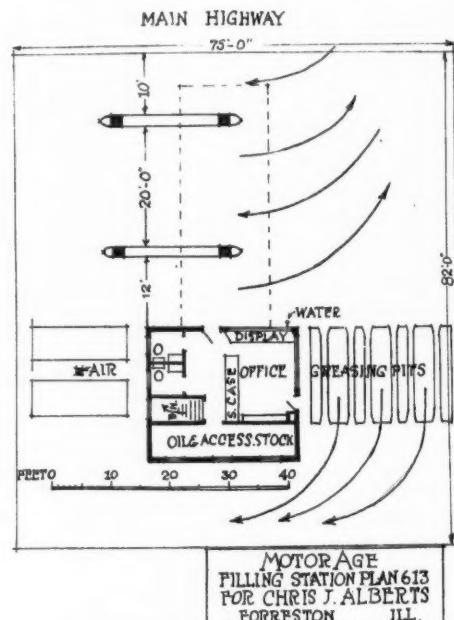
Successful Filling Stations Must Be Ample in Size

Q.—I am thinking of building an oil station and have my own tanks at the track and put a truck on the road along with the station, buy my oil, gas and kerosene in tank lots.

On a separate sheet I will give you location and size of lot, which is on the main highway and two blocks from downtown. What size would a station be to have 2 or 3 pumps and have air compressor and heater down in basement. Please send me pictures of stations if you have any. Chris. J. Alberts, Forreston, Ill.

The outline of activities contained in your letter would lead one to believe that you intended to make some money out of the gasoline and oil business. Also, unlike so many others that go into this business, your property is extensive enough so that you can make a first class filling station, with plenty of room for crankcase service and any other side line that you wish to handle.

We would think that your station should face the main highway and be placed square with it, since all of the traffic will be off and on from this highway, with very little of the traffic going around the corner. Advantage should be taken of the position of the side street to enter the station from the south, so that a turn in on the north side will be more liberal and there will be less liability of congestion. This will also give



Filling station with plenty of room

cars more space to enter the greasing pits, if you should wish to install them as we have indicated. The building that we

have shown is about 22 feet deep by 25 feet front and we have given it a display window and space for accessories. If you do not wish to handle these the building would not need to be quite so large.

Since you have wished to install a basement for your heating plant and compressor, it would be a good plan to make a passageway from the basement to the pit. In this way all the necessary tools and supplies could be kept in the basement, eliminating all this fuss and litter from the yard outside the building. Old crankcase oil which is drained may be conducted to a suitable place in the basement and used as fuel oil to heat your building. The air hose is located at the side of the building on the side street, so that cars stopping for air will not interfere with your sales of gas and lubricating oil.

If you wish only two pumps instead of four the building could be moved 20 feet forward, leaving 12 feet between the pump and the front of the building as indicated.

A shelter is always a good thing and one placed as shown would probably furnish all the protection needed.

By WELLINGTON GUSTIN
of the Chicago Bar

A QUESTION OF NEGLIGENCE

Q.—Will you be so kind as to give me your opinion on the law on the following: I maintain an open air automobile parking space and call it Auto Park and have a sign posted, stating that I am not responsible for fire, theft or collision; also that loose articles should be checked with the attendant. A robe was claimed stolen. Am I responsible? Further, I am about to open a new Downtown Garage. How am I affected in such as to liability? —Auto Service Co., 23 E. Harrison Street, Chicago, Ill.

The same general rules apply to operating an open air parking space as to garages for storage and renting space. The apparent difference lies in the question of care or negligence exercised in the care and keeping of chattels intrusted to the keeper. In either case the keeper is required to exercise ordinary care to safely keep and return the property, and if he does not return such property on demand the burden is cast upon him by law to show he did exercise due care to keep and restore it to the owner as agreed.

But the difference between the duties each owes a customer lies in the facts and circumstances of the bailment. The garagekeeper may lock his garage when

he leaves the premises and has performed ordinarily, his duty to keep safely. But the keeper of a parking space cannot lock doors. Ordinarily he would have to have some one on duty to watch after cars parked with him. Even this is not necessary if the customers know that no one is kept on guard and are willing to take the risk for such amounts to an agreement not to hold the keeper for losses where no guards are kept.

The keeper of either garage or open space for rent, becomes a bailee for hire, in legal phraseology, and must keep safely and return on demand. He is not an insurer of the customer's property, unless he so agrees to be, so he is not responsible for fire or theft or collision—unless some act of his caused or contributed to any such loss—either knowingly or unwillingly, as by negligence. You see one would be negligent in his duty to keep safely, if he kept property in an insecure garage, where thieves could easily enter and steal, or fire could easily occur, etc. And as against such facts one may not contract away his liability for losses under such circumstances, as against public policy.

In the case of, say, the stolen robe, that is as in all negligence a question of fact rather than of law. Were you negligent in your duty to keep safely? Did you exercise ordinary care to see that the property was watched? Or did the customer understand that you provided no watcher? You could provide a watcher and still have used the due care required for things are not stolen when the thief may be caught—ordinarily. But if your watcher, say, was drunk, or had temporarily left the place, causing the loss, then these circumstances would be enough to charge you with the damages.

The sign, if conspicuous, or if brought to the attention of the customer may become a part of his contract with you—this bailment. If brought to his attention, or he knows of it, he must act accordingly for this is what you agree to do, and if he fails to take advantage of preserving his property by checking with the attendant then he is negligent, not you—this of course, being limited by the foregoing observations on your duties and negligences, irrespective of provisions to the contrary.



Motor Age's Flat Rate Forum

EDITED BY B. M. IKERT

Lessons From the Speedway Pits

WHILE no customer ever will be as hard pressed for time as a race car driver when he comes to the pits during the running of a race like the recent 500-mile Indianapolis race, still he is anxious to get fixed up and under way as soon as possible. This, of course, relates to such jobs for which the customer can wait and does not mean major repair operations.

The reader may wonder just what the running of the Indianapolis race has to do with the customer in the shop. Nothing, to be frank, but still something which holds true of the race driver at the pits holds true equally well with the customer who comes into the automotive shop or service station.

Pit Men Work Fast

When a race driver stops at the pits, say for a tire, water, oil and gasoline, everything is ready for him and the supplies are gotten to him in the shortest time possible. Pit stops are costly sometimes and may mean the losing of a race by seconds only.

There is organization in the pits of a racing team and pitmen practice wheel and tire changing, replenishing of fuel and oil tanks, etc., for long periods in order to cut down the time required to a minimum.

The tools are laid out so they can be grasped in proper sequence, each man doing a particular part of the job. Then, when the driver has been fixed up properly and is again under way, the tools and equipment used are carefully ar-

ranged again in the pit for the next driver, whom we can liken to the customer in our shops.

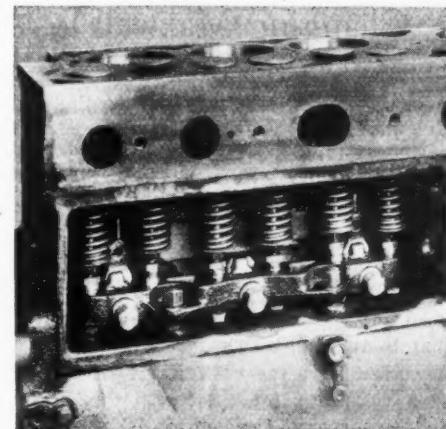
We have not learned enough from the pitmen as yet. You have only to watch mechanics in some shops (particularly those operating on the so much per hour plan) to realize this.

In the shop operating on the flat rate basis and piece work compensation to the mechanics, there is a different story in the majority of cases. In these shops the men have learned and are learning that it is entirely possible to organize for a repair job in order that the time factor can be cut down to bed rock.

Any mechanic who has had sufficient experience on motor cars knows just about what tools and parts he is going to need on a job like valve grinding, and he will see to it that he has all these things on hand the minute he starts on the job.

The plumber has been kidded to death about going back and forth to his shop for tools and charging all these trips up to the customer, but many automotive shops have the plumber beat.

We all have seen a mechanic crawl out from under a car several times to get certain tools, when he could have figured out in a minute or two just the tools he would be likely to need. The trips back and forth to the bench and tool room are the ones which piled up the costs on the repair jobs and about which the customer certainly had a right to complain.



THINGS WHICH HELP FLAT RATE

To facilitate valve tappet adjustment and work on the valves in general engine builders now provide ample space around the end valves so spring compressors or valve lifters, tappet wrenches, etc., readily can be used.

Flat rate is all right and so is piece work, and both of them work out wonderfully well if more attention is paid to cutting down the time of doing the work. Too bad every mechanic cannot get a first hand glimpse at a couple of pitmen doing their stuff for a race car driver who sees possibilities of winning the sweepstakes.

Flat Rate Is Fair

Lone Rock, Wis.

To the Editor of MOTOR AGE:

While I can see the advantage in certain cases of the flat rate, I think it is not fair. What I mean is that it does not seem right for a shop to charge two men the same price for a job when one of them takes excellent care of his car and the other does not.—O. M. L.

Off hand anyone might say it is not right to penalize the man who takes care of his car, but if you will closely study the flat rate systems you will find that the man who does not take care of his car, or rather a car on which a job is more difficult to perform (frozen knuckles, etc.) is penalized.

For example in the flat rate forum published in the April 30 issue of MOTOR AGE, you will find operation A-11 listed as "R & R knuckles, bolts frozen" and which you will also find calls for a greater charge than operation A-4 "R & R both knuckle assemblies." A well worked out flat rate system takes care of such instances and you must also remember that the man who takes care of his car will not make so many trips to the service station.

The proof of the pudding is in the eating and the strides made during the last few years of the flat rate system certainly seems to indicate that it is by far the best solution yet for the proper selling of maintenance.

MOTOR AGE'S FLAT RATE FORUM

No. 16

MAXWELL FLAT RATES FOR EMERGENCY BRAKE OPERATIONS

Manufacturer's
Official
Designation

	Time
300 Remove and install transmission brake drum including removal and installation of brake band and front universal joint (a) Remove and install brake band lining in conjunction with 300, add	3 hrs.
301 Remove and install new transmission brake band, including removal and installation of necessary parts	$\frac{1}{2}$ hr.
302 Remove and install transmission brake band lining, including removal and installation of band	1 hr.
303 Remove and install transmission brake support, right	$\frac{3}{4}$ hr.
304 Remove and install transmission brake support screw	$\frac{1}{2}$ hr.
305 Remove and install brake hand lever, including removal and installation of floor boards	1 hr.
309 Remove and install pull rod, hand lever to cam	$\frac{1}{2}$ hr.
310 Remove and install brake cam assembly	$\frac{3}{4}$ hr.
311 Remove and install brake cam guide and rollers (a) One	1 hr.
312 Remove and install brake release spring	$1\frac{1}{4}$ hrs.
313 Remove and install brake release spring retaining bracket	$\frac{1}{4}$ hr.
314 Remove and install brake adjusting screws	$\frac{1}{2}$ hr.
315 Adjust transmission brake	$\frac{1}{2}$ hr.



Clearing Up Electrical

EDITED BY A. H. PACKER

Changing Maxwell to 6 Volts

Q—We have a 1916 Maxwell with Simms Huff motor generator used with a 12 volt four terminal battery. We would like information on method of connecting this generator to a 6 volt battery to be used for light and ignition only.—Elmira Garage, Elmira, Ohio.

We are showing a wiring diagram in which a special lighting switch has been used but you can use any lighting switch that is available. The essential parts of the circuit are the two gang switch used as a regulator together with the cutout and ammeter. The cutout is a regular 6 volt cutout. The two gang lighting switch has iron wire resistance coils mounted on the back, one of these being twice as long as the other.

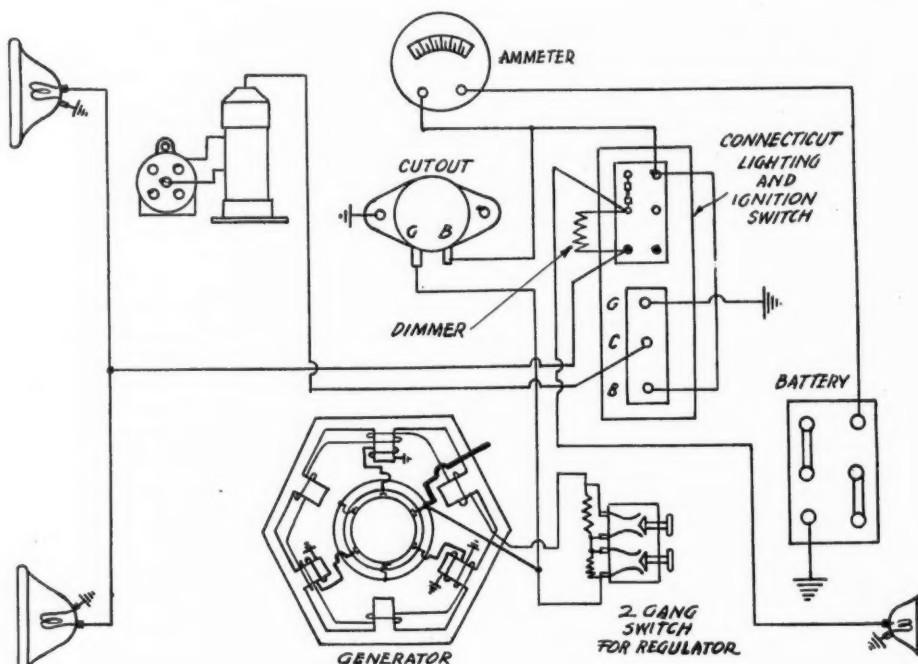
When the car is operated and the speed is increased it will be necessary to observe the ammeter and pull out one or both of these regulator switch buttons in order to hold the current down. There are also replacement regulators of the vibrating type which may be secured from any large electrical parts distributor. These operate automatically and save the necessity of changing the charging rate occasionally as the speed of the car is changed.

When a Motor Becomes a Generator

Q—What happens in a model G. A. North East motor generator when it is acting as a generator and what is the path of the current that goes through it when it operates as a starter on Dodge Brothers car.—Nebraska Reader.

A wiring diagram of the electrical system used on Dodge Brothers cars was shown on page 27 of the February 26, 1925 issue of MOTOR AGE. To understand the action of a machine when it changes from a generator to a motor we must consider the fact that the voltage generated will increase as the speed increases. For this reason there is a certain speed where the generator voltage is exactly equal to the battery voltage and if a generator operating at that speed should be connected to the battery there would be neither discharge current nor charging current flowing. Assume for example that the battery voltage is 12 and that the generator voltage is 12, and that we then speed up the generator. This means that the generator is now producing more voltage than the battery and accordingly will send current to the battery.

On the other hand if we slow the ma-



WIRING OF 1917 MAXWELL FOR GENERATING ONLY USING SPECIAL UNITS #100839

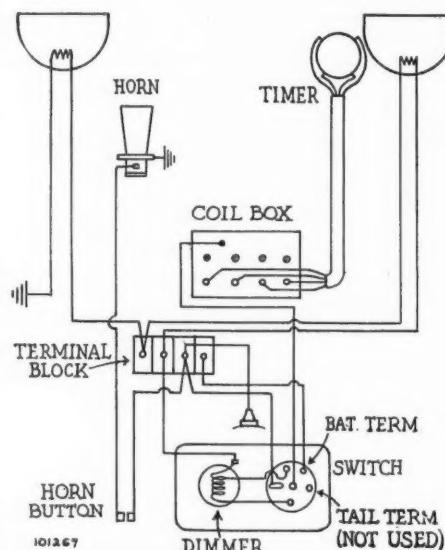
chine down so that its voltage is less than that of the battery then the battery will discharge through the generator and the armature current will reverse. Accordingly there is very little difference in the action of the generator and motor except that the current in the armature reverses. In the North East motor generator used on Dodge Brothers cars there is another action that takes place for the current in addition to going through the armature goes through a series winding on the field which makes the field magnetism stronger when the machine is operating as a starter. Con-

versely when the machine operates as a generator this current reverses and tends to weaken the field magnetism and helps to regulate or limit the current at high speed.

ALTERNATING CURRENT WORKS THIS DIMMER

Q—I would like a wiring diagram showing the lighting circuit on a Ford truck as wired at present using the dash switch and the "2-Lite" bulb without battery. Welcome Garage, Pomona, Mo.

The 2-Lite bulb which has two separate filaments in it is not used with magneto current. The bulb used is a double contact 21 candle power 6-8 volts and the two headlamps are wired in series as shown by the diagram which is published in accordance with your request. The instrument unit contains the dimming or impedance coil and the switch. When the lights are turned to the bright position current from the magneto goes to the terminal block and then to the oval contact of the switch, then to the contact just above it and from there through a few of the dimming coils to the right hand lamp. Connection is then made back to the terminal block and to the left head lamp and then to ground. The ground connection is at the dash bracket on the left side of the car. When the lighting switch is turned to the dim position the current must pass through all of the turns of the dimming coil.



Ford truck wiring

Trouble With Bill Fixit

EDITED BY A. H. PACKER



Connecting a New Cutout on Maxwell Motor Generator System

Q.—I wish to thank you for the help which you have given me in the past. The information which I received through the Clearing House has been worth far more to me than the subscription price of Motor AGE. We have in our shop a Maxwell 25 fitted with Sims-Huff starter generator which has been re-wired from a split 12-volt system to a straight 12-volt system. After this change was made the 7-volt generator failed to keep the battery charged. An ammeter was installed which showed the charging rate was only 2 or 3 amperes. We increased the tension on the regulator points and the charging rate was increased to ten or fifteen amperes which was satisfactory. A short time ago this generator failed to function and an examination showed that the regulator cutout located in the switch panel was in bad condition. Several soldered connections were loose and the points were burnt and as the wiring of this panel is somewhat complicated and all terminals are soldered we decided to install another panel in the engine compartment, using the regulator output part only.

The panel which was added had four wires attached to the regulator, marked Bat. Pos., Bat. Neg., Field and Open. We grounded the Bat. minus wire and wired the terminal marked Fld. to terminal on the side of the generator. The generator post was connected to the end terminal on the generator. The Bat. Pos. was wired to the correct terminal of the ammeter. All lamp wiring is O. K. The ammeter shows discharge when the lights are on and the starter works O. K. but the generator will not charge the way it is wired. Both panels are attached to metal dash. Please show method of wiring this regulator cutout correctly.—W. W. Bissell, Zearing, Iowa.

May Be Reversed Connections

On page 28 of the December 25, 1924, issue of MOTOR AGE you will see an analysis of a method of installing a voltage regulator. This also shows the correct and incorrect way of wiring it. It seems possible that you have made a different mistake and have reversed the connections at the two battery terminals. In the illustration on page 28 of the December 25 issue the terminal marked GR is the equivalent of one of your battery terminals. To properly wire this up you should close the cutout points by hand and use a battery and a test light to see which one of the battery terminals becomes connected to the generator terminal by the closing of the points. When you have found out which battery terminal is thus connected, then the other battery terminal would be the one to ground. We believe that you grounded the wrong one. After grounding the proper battery terminal then the connections you made would be all right. The field terminal goes to the small terminal of the generator and the Gen. terminal would be connected to the large terminal of the generator and the other battery terminal would be connected to the ammeter. It is possible that you may continue to have some trouble with this

system, due to the fact that the generator is not ideal for this work. In the original split 12-volt system it operated on 6-volts as a generator so that the shunt field of the motor generator as well as the shunt winding of the cutout were designed for 6-volts. If you have had no trouble due to generator overheating you can forget that part of it. The melting

which should be grounded and see if it just barely will hold the cutout points closed. If an 8 volt battery will close the cutout points then it shows you have a 6-volt cutout, which is likely to burn out again.

Regulator Not So Essential With Constant Speed

Q.—Would like to ask if you have any data in regard to a genemotor put out by the General Electric Co. We would like to use this machine to charge 6-volt battery and run it with a gasoline engine when pumping water. Send internal wiring diagram and state what kind of a regulator was used. Do not know what kind of car this came off but it seems to be all right, but there is no controller.—Ray Jessop, LaValle, Wis.

Diagram of this generator was shown on page 45 of the August 9, 1923, issue of MOTOR AGE and we are mailing you a copy. Regulation was by means of a third brush and a reverse shunt winding. In using this machine for charging batteries, however, you will not need to use this regulating winding and can discard the third brush. You will also not need a regulator of any sort, for regulators are only provided to take care of variations in speed. There are two connections, one negative lead and one positive, and these will be the ones to use in charging a battery. You can also connect in an ammeter to see how much current is going to battery. In case the generator charges too much it would be desirable to open the shunt field and connect an iron wire resistance in series with it.

WANTS TO CHARGE BATTERY FROM FLYWHEEL MAGNETO

Q.—Can a battery be charged from a Ford motor flywheel magneto in any way? —Daniel J. Brown, Leibhardt, N. Y.

We know of no method of using the Ford flywheel magneto for successfully charging a storage battery. There have been one or two devices placed on the market designed to rectify the alternating current of the Ford magneto, but to our knowledge none of them has been a success.

Q.—What is the timing of the inlet and exhaust valves on an Earl motor?

We do not have any factory data on this engine but from information contained in the instruction book it is apparent that the exhaust valve closes approximately at top dead center. If you will set the valve to close at this point and the gears will mesh you can feel safe that the timing is correct as the difference of one tooth would cause quite a variation in piston travel, and would be noticeable.

of the soldered connections in the cutout, however, indicates that it was overheated due to applying 12 volts to a fine winding designed for 6 volts. The overheating was further aggravated by sending 12 or 15 amperes through the series winding which is designed to have 7 or 8 amperes. You must remember that when you have a 12-volt system it is sufficient to have 7 or 8 amperes which is the equivalent of 14 or 16 amperes on a 6 volt system. The rule is that when you double the voltage you cut the current in half, to get the same power. One way to check the regulator you are installing is to connect a 12-volt battery from the Gen. terminal to the battery terminal

THE MARKET'S NEW OFFERINGS

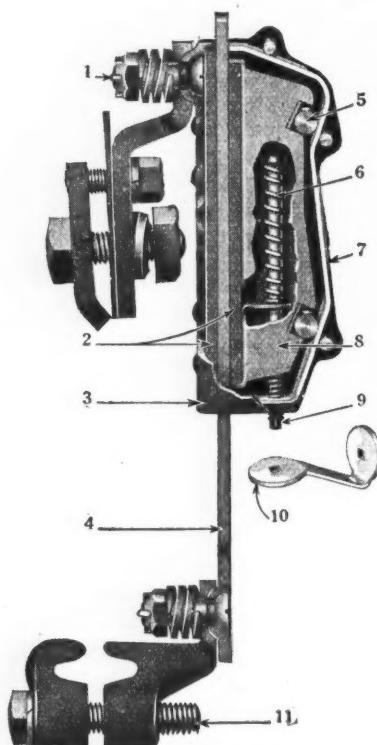
Accessories—Equipment—Supplies

Gemco Shock Absorber

A SHOCK absorber which its makers say will never require servicing, which is simple in construction and yet which possesses qualities that make it fundamentally different from other accessories of this character has been developed and placed on the market by the Gemco Manufacturing Company, of Milwaukee, Wis. Its producers recommend it for its speed in "taking hold," free action when it should have flexible play and its perfect proportionate control of spring action.

An individual feature is the internal expanded coil clutch principle of operation which enables the Gemco to "take hold" swiftly when the spring reaches the low point of compression and begins its return to normal. Its action is said to eliminate the usual period of "catching up" and thus eliminate failure to con-

as the cam spring returns to normal. A thumbscrew adjustment makes the Gemco adaptable for all cars from 1500 to 5000 pounds. One type of fitting is used for all cars but Fords for which a special fitting is provided.



Gemco Shock Absorber

trol the spring from the beginning of recoil.

With the internal expanded coil clutch principle there is no drag against the spring during compression. The exclusive cam lever principle of the Gemco is claimed to produce proportionate control, braking force varying in direct proportion to the degree of spring compression and the power of recoil. A groove in the revolving drum, forming the cable track, gradually decreases the leverage with the increase of spring compression, and increases the leverage

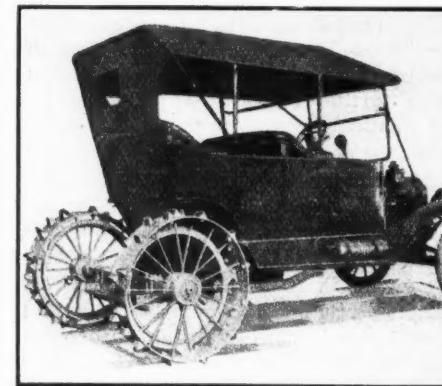


Bonney Rim Tool

Pullford

CONVERTING the farmer's Ford into a tractor for plowing, harrowing, drilling, mowing and other tasks for which horses are used is said to be practical and possible with the "Pullford." This is an attachment which is being made and marketed by the Pullford Company, of Quincy, Ill.

The Pullford consists of a frame of 3-inch steel "I" beams attached to the car frame with clips. It is mounted on two 36-inch rear steel wheels operating on roller bearings. The steel tires, 10 inches wide, are provided with cones for plowing. The wheels are fitted with semi-steel bull gears and two sets of steel pinions, one for tractor speed and one for trailer speed. Also, there is one two-inch square steel rear axle, adjustable to either pinion. Attachment or removal can be accomplished in 30 minutes. In operation it is said the Pullford causes no undue strain on the car. Price \$155, f. o. b. Quincy.



Pullford

Bonney Rim Tool

A PRACTICAL rim tool which the company recommends both for the shop and the car is being manufactured by the Bonney Forge & Tool Works of Allentown, Pa. It is called the Bonney Rim Tool. Although amply large for practical service the Bonney Rim Tool is said to be the smallest device of its kind on the market, having been designed to fit compactly in the tool box. It is made throughout of steel, the body and jaws being drop-forged and the working parts and screws are hardened.

The feature of the tool is the leverage exerted on the rim. It forces the rim downward, then forward making the separation clean without jamming or burring the rim's edges. These tools are strongly packed and each box contains a heavy canvas bag in which the tool may be kept. The price, east of the Mississippi is \$6. Canadian and western prices slightly higher.



Vesta Sealed Battery

Vacuum Sealed Batteries

"VACUUM Sealed Batteries" have been added to the line of the Vesta Battery Corporation, 2100 Indiana Avenue, Chicago. The company announces that all Vesta batteries will be supplied with the Vacuum Sealed feature when so ordered. The process consists of a Vacuum cap which does the sealing. While it remains in position it is said chemical action is suspended and the battery remains in perfect condition. Besides offering an advantage in stocking the batteries until they are put into operation the makers stress the point that when the customer sees the acid poured in he will know he is getting a fresh battery which will provide its full life of service. The Vesta Corporation or any station will supply full information.

EDITORIAL

The Opinion of an Expert

NO Doctor is likely to accept advice from his patient.

No Engineer is likely to take suggestions on engineering made by his golfing friends.

No Lawyer has much respect for the legal opinion of his clients.

No Dealer credits his customers with a great deal of knowledge about the trade.

The expert does not accept the opinion of the layman.

The layman accepts the opinion of the expert.

Influence comes from authority.

Reaching the trade through the trade press is reaching the user through his authority.

Good Parts and Poor Parts

THE average good automotive service shop these days knows a lot about parts. The sale and installation of replacement parts is a big item in its business. And the distinction is quickly learned between good and poor parts.

There are several sources of good parts. The automobile manufacturer supplies them and there are independent manufacturers making and distributing high grade parts. Unfortunately, there are also some inferior parts on the market.

The dealer or maintenance man who values his reputation will not install inferior parts if he knows it and if through an oversight he uses parts that are not up to standard he will quickly make them good. Good replacement parts are the primary requisite of any repair job requiring a replacement.

The dealer and service shop should determine where reliable replacement parts can be obtained and then should stick to those dependable sources.

The Motor Car and Progress

IN speaking of the motor vehicle's importance in American progress the American committee on highway transport will make the following comment in a report to the conference of the International Chamber of Commerce which opens in Brussels June 21:

"During the period of the motor car's advance in America savings banks deposits have nearly doubled, individual bank deposits have more than tripled, assets of building and loan associations have tripled and life insurance in force has increased two-and-one-half times. This would seem to prove that development of the automobile as a basic element of transportation has been a vital part of the increased efficiency and productive capacity of all interests."

The committee does not claim that all this advancement has been due to the motor vehicle, suggesting only that development of the automobile has been an important contributing factor. Just what part it has played in the country's great progress of recent years it is difficult to say but we know its part has been conspicuous.

Suddenly deprive the country of motor transportation and compel a return to the horse-drawn vehicle and industry would suffer a set-back and shock the effects of which one dislikes to contemplate. The motor vehicle has come with a service of speed and efficiency that has revolutionized methods and standards. It has caused many transformations in the past 25 years and in the next 25 it will be responsible for many more. Its influence is still ascending rapidly.

Study Business Methods

IT takes more than a knowledge of automobiles to make a good automobile dealer. Even the garage man or repair man who expects to be successful cannot limit his knowledge to axles, engines, wheels, oil and gasoline, tolerances and the like.

It is well to know these things, but financial success requires a fundamental knowledge of the principles of sound business.

The proprietor of any sort of automotive business, be he dealer, repair man, garageman, battery man, or any other type of automotive merchant, is a manager, employer, buyer, seller, just as is any other merchant. If he is to succeed he must first of all know how to perform the functions of these business offices which are in no way peculiar to the automotive business.

Under the competitive conditions of today success will not come from a superior knowledge of automobiles and automotive merchandise alone. Such knowledge is important, of course. But much more important is superior knowledge of sound business methods.

N. A. C. Will Join Sales Congresses

Makers and Dealers to Hold 125 Merchandising Gatherings

Col. Charles Clifton Re-elected Head of Producers—Tribute Paid to C. C. Hanch

NEW YORK, June 6.—Colonel Charles Clifton of Buffalo was reelected president of the National Automobile Chamber of Commerce at the members' meeting in New York this week. This makes the 21st time that he has been chosen as leader of the automobile industry's trade association and its predecessors.

A resolution of tribute was voted to C. C. Hanch, a director of the chamber, who served as chairman of the Patents Committee for twelve years. He is now general manager of the National Association of Finance Companies. The Patents Committee has administered the Cross-Licensing Agreement, whereby more than 700 patents are made available to each participating member of the chamber.

To Join N. A. D. A. Congress

The makers voted to join with the National Automobile Dealers Association in a program of 125 sales congresses having for their purpose the improving of the merchandising methods of dealers.

Although the agreement will officially be dated as of June 1, to be in effect for a year, it is unlikely that the first meetings will be held before October.

On the committee representing the manufacturers are Frederick T. Haynes, Dodge Brothers, Inc., chairman; H. H. Rice, General Motors Corp.; Charles D. Hastings, Hupp Motor Car Corp.; L. G. Peed, Willys-Overland, Inc.; O. H. McComack, Hudson Motor Car Co.; and H. O. Vance, Studebaker Corporation of America.

Financial Management

Although the subject matter of the meeting has not been worked out, the manufacturers feel that the assistance most needed by the dealers is in respect to financial conduct of their business. Cost accounting, budgeting, and proper used car practice should be stressed, the factory men hold.

The agreement to hold the meetings is notable by the fact that similar proposals in the past have gone on the rocks.

The complete list of officers elected by the N. A. C. C. is as follows:

President, Charles Clifton (Pierce-Arrow).

Vice President, Roy D. Chapin (Hudson).

Second Vice President, passenger car division, Alvin Macauley (Packard).

Second Vice President, motor truck division, Windsor T. White (White).

Secretary, A. J. Brosseau (Mack).

Treasurer, H. H. Rice (General Motors).

General Manager, Alfred Reeves.

Directors elected for a period of three years were: Roy D. Chapin (Hudson); George M. Graham (Chandler); Charles D. Hastings (Hupp); H. H. Rice (General Motors); John N. Willys (Willys-Overland).

Manufacturers May Sell Insurance

NEW YORK, June 8.—Regarding the present high cost of insurance as a handicap to motor travel and an unnecessary burden on the automobile, the automobile manufacturers of the country are planning to possibly enter the insurance business with a company representative of the industry, according to a decision reached at the National Automobile Chamber of Commerce meet here.

Charles Clifton, president of this association, was authorized to name a committee to study insurance costs and to report on the advisability of actively engaging in this business.

G. M. TO HANDLE INSURANCE

NEW YORK, June 8.—Organization of an insurance company to handle fire and theft insurance on cars sold at retail which General Motors dealers and distributors finance through the General Motors Acceptance Corp. has been authorized by the finance committee of General Motors Corp.

Commencing operations with a capital of \$500,000 and a surplus of \$1,000,000, the new company, to be named the General Exchange Insurance Co., will make applications to do business in all states.

A. M. TAYLOR JOINS VELIE

MOLINE, June 6.—A. M. Taylor, an automotive advertising expert, has been named advertising manager of the Velie Motor Corporation, C. W. Hadden, general sales manager, announces. Mr. Taylor succeeds A. F. MacCrea.

For five years Mr. Taylor was with the Buffalo, Rochester and Pittsburgh Railway Company as advertising manager and director of publicity at Rochester. Following this he directed advertising work for the Franklin Automobile Company.

17 CARS ENTERED AT ALTOONA

ALTOONA, Pa., June 8.—Seventeen cars are entered for the Flag Day 250-mile speed classic which will be held here June 13. Practically all leading American drivers will participate.

Expect June to Mark Slight Drop in Output and Sales

While General Tendency May Be Down Some States Might Beat May's Volume

NEW YORK, June 8.—Slight declines in both sales and production are expected this month in the automobile business. The seasonal movement is now under way, but dealers in nearly every section of the company look for less of a decline than was experienced at this time last year.

In some states, in fact, there is an expectation that June business will be better than May. Predictions to this effect come from Ohio, Illinois, Pennsylvania, South Dakota and Washington. The truck outlook is better than it was a year ago in many communities, and about the same in the others.

Drought in the southwest continues to affect automotive business in that section, but rains in the midwest have improved prospects there.

The used car situation is irregularly better, the middle west and northwest sections particularly reporting improvement in this important part of automobile merchandising.

An Encouraging Sign.

The decline of 4 per cent in May production as compared with April is regarded as an encouraging sign, since it took place despite a practically uninterrupted flow of orders from the field. In some quarters the lower output is pointed to as evidence that the manufacturers started to curtail before the seasonal slackening set in, determined not to repeat the errors of overproduction of former years. Yet due consideration must be taken of the fact that there were fewer working days in May than in April, and that several factories were kept from full production by inability to obtain all the bodies needed for closed cars.

Tire and accessory business is being maintained at a high level, and the year seems likely to set a record in production and use of these products.

A tendency toward lower prices is noted, and this, together with the introduction of new and attractive models, is stimulating business for several of the companies.

NASH DEALERS ADD AJAX

RACINE, Wis., June 8.—The Belden-Nash Co., Racine, Wis., Nash and Ajax dealer, has increased its capital stock from \$25,000 to \$50,000 to handle the additional volume of business incident to the new Ajax franchise.

U. S. Supreme Court Holds Trade Association Work Legal

Automotive Industry Not Immediately Affected as Prices and Unfair Motion Are Public.

WASHINGTON, June 6.—The "trade association" method of co-operation within the automobile and other great industries was upheld by the Supreme Court this week over the protest of the Federal Government.

Laying down principles of far-reaching importance to the business world, the court decided that neither the Cement Manufacturers' Protective Association nor the Maple Flooring Manufacturers' Association was invalid under the anti-trust laws.

Three Members Dissent

Chief Justice Taft and Justices McReynolds and Sanford dissented.

The majority opinion in the flooring case says that "The cost of production and prompt information as to the cost of transportation are legitimate subjects of inquiry and knowledge in any industry."

It was not the intent of the Sherman law to prohibit the intelligent operation of business, said the majority opinion.

The operations of these two associations had been declared by government counsel to be broadly similar, and typical of a movement among great business concerns to pool their interests in violation of the Sherman Act under the guise of merely exchanging trade information. With that contention the Supreme Court disagreed, holding that both associations were operating lawfully.

No Illegality Shown

Justice Stone, delivering the opinion, said it was not the intent of the Sherman law to prohibit the intelligent operation of business. No concerted action to restrain interstate commerce, he said, had been shown by the collection of statistics by the association.

"We decide," says the majority opinion in the flooring case, "only that trade associations or combinations of persons or corporations which openly and fairly gather and disseminate information as to the cost of their product, the volume of production, the actual price which the product has brought in past transactions, stocks of merchandise on hand, approximate cost of transportation from the principal point of shipment to the points of consumption, as did these defendants and who, as they did, meet and discuss such information and statistics without, however, reaching or attempting to reach any agreement or any concerted action with respect to prices of production or restraining competition, do not thereby engage in unlawful restraint of commerce."

Taft Gives Reasons

Justice Sanford announced that he and Chief Justice Taft disagreed with the ma-

Willys Overland Reduces Price

TOLEDO, June 7.—Cut of \$90 in price of the Willys-Overland six-cylinder sedan has been announced here by officials. The price is now \$895 F. O. B. Toledo. The car was first placed on the market in February. Robert Butler, Sales Manager of Willys-Overland, Inc., announced that agencies of the company in this city had broken all records in May by selling 566 Overland and Willys-Knights in Toledo.

jority on the ground that the evidence in each of the two cases brought them substantially within the rules, as stated in the American Column Co., and the American Linseed Oil Co. cases, and that the organization in both cases was unlawful.

Justice McReynolds held that the purchase of the two associations was to suppress competition and tended to defeat the purpose of the Sherman Act.

REEVES COMMENTS

NEW YORK, June 6.—Commenting on the Supreme Court decisions affecting trade associations, Alfred W. Reeves, general manager of the National Automobile Chamber of Commerce, said:

"The decisions are very important as affecting business and trade associations generally. The legitimate work of associations should be greatly benefited. The automobile industry is not immediately concerned, however, since all our information is made available to the public, and since our prices are widely advertised."

ADDRESS STUTZ DEALERS

INDIANAPOLIS, June 8.—F. E. Moskovics, president of the Stutz Motor Car Co., of America, Inc., and Charles M. Schwab and Eugene V. R. Thayer of the board of directors, spoke to dealers and distributors at the annual meeting held here. Informal conferences were held at the Stutz factory and at a luncheon held at the Athletic Club. Mr. Schwab and Mr. Thayer praised the sales activities of the organization.

Announcement was made later that the Newark branch had won the Stutz president's cup for the best monthly record for sales development. The trophy competition is open to distributors and branches, permanent ownership going to the branch or distributor winning it three times in succession.

TO REJOIN COMPANY

BUFFALO, June 6.—Announcement has just been made by H. M. Kinnee, president of the Buffalo Cadillac Corporation, distributor and retailer, to the effect that Charles B. Kane will return to that organization as vice president, effective immediately.

McCord Radiator Purchases Business of National Radiator

Sale Includes Inventories, Equipment, Patents and Good Will, But Not Plant and Real Estate.

DETROIT, June 6.—The McCord Radiator & Mfg. Co. has acquired the business of National Radiator & Manufacturing Corp., also of this city, taking effect June 1, it was announced today by A. C. McCord, president of the former concern. The deal was negotiated by Mr. McCord with Adrian D. Joyce, president of the Glidden Company of Cleveland, who, with his associates some years ago purchased control of the National Can Company, and subsequently sold the can business to the Continental Can Company, reincorporating the radiator business.

The sale includes inventories, equipment, patents and good will, but not the plant and real estate. There was no purchase or exchange of securities.

It is contemplated to continue the operation of the National plant intact for the present, but ultimately this business will be merged in the main McCord plant at East Grand Boulevard and Riopelle street, Detroit. However, the Zig Zag radiator will be continued as one line of McCord products, together with McCord tubular and cellular radiators, gaskets and lubricators.

BUILDING MEXICAN HIGHWAY

MONTEREY, Mexico, June 6.—Construction of the first link of the trunk highway which the Mexican government has laid out between Laredo, Tex., and Mexico City has been started here. It is to run between Monterey and Saltillo, 80 miles. It is estimated by government authorities that the 5½ cents a gallon tax on gasoline will bring in an annual revenue of about \$2,500,000, with the possibility that this sum may be considerably increased from year to year.

FINAL REPORT IS FILED

TOLEDO, June 6.—The final report on the settlement and disposition of claims against the Willys Corporation growing out of the receivership of the company has been filed in federal court here by Curtis T. Johnson, former judge of common pleas court.

PRESIDENT OPPOSES SUBSIDIZING

WASHINGTON, June 7.—While President Coolidge is looking with keen interest the commercial aviation experiment of Henry Ford, who has established an air service between Detroit and Chicago, it is learned here that the Chief Executive is opposed to subsidizing commercial aviation.

Franklin Dealer Orders Will Absorb Output to August 15

New Coupe Gaining in Favor Present Trend Show—Retail Conditions Regarded as Favorable

SYRACUSE, N. Y., June 8.—Franklin Automobile Company reports that dealers' orders now standing against July production will absorb the entire factory output for that month and also one-half of August production.

In order to regulate output with retail demand, Franklin permits dealers to order each month's requirements forty days in advance. Retail conditions are regarded as favorable inasmuch as unfilled orders in dealers' hands are now more than double the number at this time last year.

The ordering period, which closed May 20, revealed a surprising demand for the new Franklin coupe. Orders now standing are practically equal to half the Sedan orders, the latter being the predominating model in Franklin production.

Southeast Tractor Sales Are Better Than Year Ago

ATLANTA, Ga., June 6.—Though general business conditions in the Southeast are not as satisfactory as they were a month or two ago, reports of the seven larger distributors of tractors and power farming equipment to the Federal Reserve Bank of Atlanta note another remarkable increase over the corresponding month last year.

The percentage of gain of the tractor and implement distributors in April, 1925, over April, 1924, amounted to 63.7 per cent.

Contrary to expectations, sales in April continued to exceed those of March.

Wisconsin Race Drivers Form Association to Boost Racing

KENOSHA, June 8.—Wisconsin automobile pilots have banded together to form an organization of their own to boost the racing game in the state. Stanley Nowicki is president.

The association aims to develop pilots to represent Wisconsin in national automobile races, and is planning a schedule of races at all of the major tracks in the state. All of the members of the organization, which has been tentatively named the Wisconsin Race Drivers' Association, drive their own cars.

E. M. LUBECK RESIGNS

KOKOMO, IND., June 6.—E. M. Lubeck, the last member of the old executive organization of the Apperson Automobile Company, has resigned his position as general sales manager, which he has held for the last three years. Don C. McCord, president, has not announced Mr. Lubeck's successor, nor has Mr. Lubeck made definite plans for the future.

De Paolo Leads in A. A. A. Points

INDIANAPOLIS, June 7.—The race held here Memorial Day produced a new lineup in the standings of leading drivers who are competing for the American Automobile Association's 1925 speedway championship.

Peter De Paolo is now well in the lead as a result of capturing 890 additional points in the Indianapolis race. Tommy Milton who was leading the list about a month ago has dropped back to second place. Harry Hartz who was fourth at the last check is now third and Earl Cooper who was third is now fourth. Following is the standing:

Driver	Points
1. De Paolo	1500
2. Milton	890
3. Hartz	560
4. Cooper	555
5. Lewis	465
6. Shafer	240
7. Duray	135
8. McDonogh	120
9. Batten	110
10. Comer	95
11. Kreis	77
12. Bordino	54
13. Hill	50
14. De Palma	40
15. Shattue	35
16. Mourre	11
17. Corum	10
17. Johnson (R. J.)	10
17. Elliott	10

Studebaker Cash Collections During May Total \$19,600,000

Exceed Disbursements by \$4,200,000, Statement Says—Bank Balances Over \$10,000,000.

SOUTH BEND, IND., June 8.—President A. R. Erskine of the Studebaker Corporation of America today made the following statement:

"Studebaker May cash collections were \$19,600,000 and exceeded disbursements by \$4,200,000. Receipts for March, April and May were \$54,000,000 and exceeded disbursements by \$14,000,000.

"Bank balances June 1 were \$10,700,000, with no bank loans outstanding. May production was 14,492 cars.

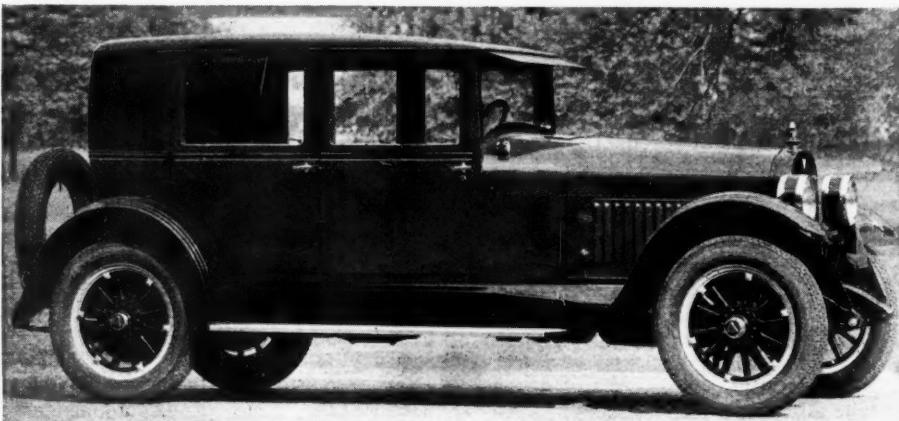
"Demand continues to exceed production, and all plants are operating at capacity, with total employees numbering about 21,000."

In April, Mr. Erskine announced that all corporation bank loans would be retired July 1. The foregoing statement shows that this has been accomplished a month earlier than expected, marking a new high spot in the corporation's financial history.

DALLAS TO HAVE SPEEDWAY

GRAND PRAIRIE, TEX., June 6.—Construction of an automobile speedway, similar to the one at Indianapolis, will be started here soon. Dallas men have incorporated the Greater Texas Speedway Association and a tract of 216 acres of land situated adjoining Grand Prairie, and only within a few miles of Dallas, has been purchased as a site for the proposed speedway.

New Hudson Brougham



The Hudson Motor Car Company recently announced the introduction of a new brougham of the four-door close-coupled type and selling at \$1,595, \$345 more than the coach and \$95 more than the touring. Aluminum is employed throughout in the construction of the body panels while the rear quarter sections are leather covered. The details of fittings and trimmings are of the same standards as those employed on the Hudson seven-passenger closed models.

Ford Car-truck World Output Averages Above 8,125 Daily

Domestic Plant Production Around 7,200 Daily—Foreign Plants Are Turning Out 925.

DETROIT, June 6.—World production of Ford cars and trucks is now averaging slightly above 8,125 a day, a daily output greater than at any previous time in the history of the Ford organization.

This is the record of Ford accomplishment as revealed in figures just given out at the general offices in Detroit covering the combined production of domestic assembly plants, foreign plants and associated companies and the Ford Motor Company of Canada, Ltd.

Average 7,200 Daily

Since May 1 the Ford assembly plants in the United States have been averaging a daily output of more than 7,200 cars and trucks. This was despite the delay at some plants of the arrival of parts.

During this time, plants in Europe and South America set new records and with the daily output of Ford of Canada, which supplies Canada and the British Colonial possessions, added a daily average of 925 cars and trucks, bringing the daily total up above 8,125.

On May 19, when domestic plants went to the new high mark of 7,858 cars and trucks, foreign plants and the Canadian company produced 892, setting as the record a total of 8,750 Ford cars and trucks.

Promotions Follow Dodge Brothers Reorganization

DETROIT, June 8.—Promotions of leading executives of the Dodge Bros. organization have been made following the reorganization incident to the purchase by Dillion Read & Co.

Frederick J. Haynes continues as president and A. T. Waterfall as vice president. John Nichols, Jr., general sales manager becomes vice president in charge of sales and A. Z. Mitchell, factory manager, becomes vice president in charge of manufacturing. H. V. Popency, secretary of the former company, is now secretary and treasurer. R. J. Fry is now assistant secretary and treasurer.

The executive personnel appointed by Mr. Haynes includes the following: J. R. Lee, assistant to the president; Russell Huff, director of engineering; Clarence Carson, chief engineer; R. H. Allen, purchasing director; P. G. Findlay, director of traffic; R. A. Vail, factory manager; Albert A. Andrich, production manager; F. L. Sanford, general sales manager; F. B. Walker, assistant general sales manager; J. H. Gordon, director of field survey; F. H. Akers, director of districts; Arthur E. Nafe, director of service; R. C. Graham, director of commercial car truck division; Howard Baker, director of Civic relations; J. J. Palmer, export manager;

Nash Not After Ajax Auto Parts Co.

RACINE, June 6.—A widely circulated report that the Nash Motors Company was negotiating for the purchase of the Ajax Auto Parts Company, formerly known as the Higgins Spring and Axle Company, was denied here by John W. Bate, president of that organization. The company is now operating stronger than at any other time since its founding, he insisted. The Ajax Auto Parts Company has contracts from the Ajax Motors Company for springs and axles, and is now employing 250 men with an output of 1,000 tons of steel products monthly.

H. J. New, distribution manager; E. G. Williams, export counsel; A. H. Schiappacasse, used car manager; George Harrison Phelps, advertising counsel; N. J. Koch, manager of advertising division.

ORGANIZE GAGE COMPANY

COLUMBUS, O., June 8.—The Damsell Electric Gage Co., a recent Columbus corporation, has been organized by the election of William D. Damsel as president. Other officers are Charles A. Bliss, vice president, Sumner Cottingham, treasurer, and William S. Miller, secretary. The company has recently been formed to sell the Damsel electric gasoline gage as well as other auto accessories. Offices are at 16 E. Broad Street.

JORDAN VOTES DIVIDEND

CLEVELAND, O., June 8.—Directors of the Jordan Motor Car Company, in a meeting June 4, voted the regular quarterly dividend of 75 cents per share on the common stock, and one and three-quarters per cent on the preferred, payable June 30th to stockholders as of record June 15th.

Automotive Industrial Expansion in South Shows 1925 Will Be Greatest Year

ATLANTA, GA., June 7.—With figures now available from authentic sources pertaining to industrial expansion in the southern states, it is interesting to note that in the automotive field, including new buildings constructed, new automotive firms organized, etc., during the first five months of this year the total has reached approximately 1,000 projects, compared with a total of about 750 such projects for the corresponding five months of last year.

This serves to make certain that the first half of 1925 will be the biggest year in the history of the automobile industry in the South in this respect, for the previous largest year was 1924.

The total amount of money invested has reached millions, with some of the individual projects of dealer distributing firms ranging from \$200,000 to more than \$1,000,000.

In Atlanta alone more than \$2,000,000 has been invested so far this year by automotive companies in new building construction.

May Production Was 404,300 Preliminary Estimates Show

Figures Are 4 Per Cent Under Those for April—Underestimated Demand for Roadsters.

NEW YORK, June 3.—May production of cars and trucks in the United States was 404,300 cars and trucks, according to preliminary estimates of the National Automobile Chamber of Commerce. This is about 4 per cent under the revised figures for April, which totaled 421,878. The decline for May, 1924, as compared with April, 1924, was 17 per cent.

The total for the first five months of this year is 1,693,879, or 1.7 per cent under the corresponding period of 1924.

Are Held Up

May production would have been much higher had the factories been able to obtain all the bodies needed for closed cars. Production of chassis, which does not show in the output totals, was higher than the figure for complete cars in several of the factories.

Some underestimates were made of dealers' requirements for roadsters. A great many more of these could have been sold during the month had production been scaled to meet the demand.

Bus Insurance Policies Are Fought by Knoxville Owners

KNOXVILLE, Tenn., June 8.—Motor bus operators in the Knoxville territory have filed a bill here seeking to enjoin the law enforcement officials from putting into effect the operation of the new bus law, which makes insurance policies obligatory on the part of the bus operators.

The bill avers that the new law is class legislation and a direct blow against interurban bus business, and also that it violates interstate commerce regulations.

It is further pointed out in the bill that the motor bus in the Knoxville territory has now developed to a point where the bus brings into the city an average of 2,000 persons daily, and that a great part of the retail business of Knoxville comes as a result.

Fish Hatcheries, Political Henchmen Get Part of Gas Tax A. A. A. Says

WASHINGTON, D. C., June 9.—A large part of the gasoline tax paid by motorists in the past twelve months was diverted from road purposes and applied to other uses, ranging all the way from the development of fish hatcheries to paying the salaries of political henchmen attached to state legislatures, declared a statement issued by the American Automobile Association today.

Motorists in eight states, Pennsylvania, Maryland, North Dakota, Montana, Georgia, Texas, South Carolina, New Mexico, permitted eleven million dollars of gasoline money to slip away last year so that as far as official records show no part of this slice was spent on highways or highway improvements. This slice constituted exactly one-seventh of the entire gasoline levy.

The inquiry into the diversion of the tax into wrong channels was made by A. M. Loomis of the Washington office of the National Grange who is also a member of the Advisory Board of the D. C. Division of the A. A. A.

Admitting the equitable character of the tax, which has now been adopted by forty-three states and the District of Columbia, Mr. Loomis, who is a nationally known expert on taxation, foresees the destruction of the gas tax structure unless two tendencies are forthwith discontinued. These are: Misappropriation of the tax to other than road purposes; the disposition to pyramid the tax by adding a cent or two at a time, revealing a well developed case of "gimmies" in the legislatures.

Government Assailed for Limited Help to Aircraft

DETROIT, June 6.—At the fourth annual dinner of the Detroit Aviation Society, several outstanding figures in the automotive works including Howard E. Coffin, vice president of the Hudson Motor Car Company; William B. May, Chief Engineer of the Ford Motor Company, and C. F. Kettering, President of the General Motors Research Corporation, stressed the facts that Detroit is taking the lead in the aviation industry as it did in the automobile field 20 years ago, and that the city's newest industry, that of building aircraft, will eventually be its largest.

Howard E. Coffin, who was recently elected president of the \$10,000,000 concern which will operate night flying planes between New York and Chicago, assailed the governmental policy of the United States in not lending greater assistance to the development of commercial aircraft and air routes.

Southern California Dealers See New Chrysler Six Coach

LOS ANGELES, June 7.—Chrysler dealers from all parts of Southern California recently were guests of the Greer-Robbins Company, distributors, at a luncheon and meeting held at the Los Angeles distributing headquarters, on the occasion of the first showing of the new Chrysler six coach. W. B. Barruss, sales consultant of the National Automobile Dealers' Association, was one of the speakers at the meeting.

PLAN LARGE USED CAR MART

CINCINNATI, O., June 6.—Harold J. Closterman and Walter E. Schott, who have purchased for \$60,000, a two-story building at 2346 Gilbert Avenue, Cincinnati, will establish a used car market in the structure. The purchasers intend to add a third story to the building and to construct a one-story addition in the rear.

TO PROTEST PARKING LAW

BOSTON, June 6.—Business men are preparing to lodge a strong protest against the proposed new street regulations for Boston by which motor vehicles will be prohibited from parking on the streets between 8 and 10 each morning and 4 and 6 in the afternoon. There has been a big roundup of violations of the present parking laws when as many as 100 violators have been in court each

INDIA TIRE BUSINESS GOOD

AKRON, O., June 7.—Business of the India Tire & Rubber during the first four months of 1925 was the greatest in the history of the company, both in sales volume and unit production, President J. M. Alderfer reported at the quarterly directors' meeting. Increase in sales volume during January, February, March and April was 71 per cent over the same period in 1924, while unit production was about double that of last year.

TO TOP 1,200 MILES OF ROAD

AUSTIN, Tex., June 7.—Plans have been adopted by the State Highway Commission for topping 1,200 miles of gravelled or macadamized highway with asphalt. The cost will be approximately \$3,500,000, it is stated. The Highway Commission will urge the legislature to increase the tax on gasoline from one cent to three cents a gallon. The money derived from this source would be used as a basis for issuing \$150,000,000 bonds, the proceeds to be used in constructing good roads.

ACCIDENTS SHOW DECREASE

WASHINGTON, June 7.—Substantial progress toward a reduction in the number of accidents and fatalities resulting from collisions between railroad trains and automobiles at grade crossings is reported here by the American Railway Association. The association's campaign for a further reduction of such fatalities began this week to continue until September 30, the period of the heaviest motor traffic.

Jordan Display Is Winner at Valencia Orange Show

Booth Is Adjudged Most Attractive One on Exhibition—French Salon Idea Is Used

LOS ANGELES, June 6.—The Jordan display, staged by the Lord Motor Car Company, Southern California distributors, in co-operation with its local dealer, was awarded the capital prize for the most attractive display in the automotive division at the annual California Valencia Orange Show, just closed at Anaheim.

The automobile exposition was in many respects an innovation, as the tent used was transformed into a palatial French salon without a square inch of canvas showing. Conforming to the French renaissance motif of the orange show, the tent was completely sealed and walled with blue and gold sateen cloth with a low ceiling.

Except in the actual exhibits concealed lighting was employed from giant chandeliers with papier mache shades at intervals along the aisle. The separate display divisions were marked with pedestals of French architecture and the booths were outlined with markers in the form of urns bearing huge bouquets of flowers. The walls and woodwork in the salon were festooned with greenery and flowers carrying out the color scheme.

Newark Headquarters for Splitdorf-Bethlehem Heads

NEWARK, N. J., June 6.—Pending the complete consolidation of the old Bethlehem Spark Plug Company, Inc., and the Splitdorf Electrical Company, the executive offices of the Bethlehem Spark Plug Company and the Splitdorf-Bethlehem Electrical Company will be moved to Newark, N. J., and operate from the offices of the Splitdorf Electrical Company. The Bethlehem Plant of the affiliated companies will continue in operation with increased orders on account of the merger of the two companies. When the final legal and technical terms of the merger are completed, the affiliated companies will operate under the name of the Splitdorf-Bethlehem Electrical Company.

William N. Davidson, with the executive department of the company, is making Newark his headquarters. The Bethlehem Company has a field sales force and the Splitdorf Company have the same thing operating through branches located throughout the country. More economical and better service can be rendered the trade, it is said, by merging the two distributing forces of the affiliated companies.

JOINS DETROIT FIRM

TOLEDO, June 1.—Pete Revelt, for ten years with the Willys-Overland Co., and United States Advertising Corporation in various advertising and sales capacities, has resigned to join Theodore F. Manus, Inc., of Detroit.

Firestone to Grow Rubber on Large Scale in Liberia

Close to Million Acres Reported to Have Been Bought—Company to Be Organized

AKRON, O., June 7.—In a statement attacking the British rubber restriction act, which he blames for the high cost of the raw material, Harvey S. Firestone, president of the Firestone Tire & Rubber Co., indicates that he is organizing a company to go into the rubber plantation business on a large scale.

While negotiations have not yet been completed, it is learned from reliable sources that the company will soon announce the purchase of nearly a million acres of land in Liberia, which will be developed as rubber plantations.

Cultivation Started

Two thousand acres of the property are said to be already under production. Much of the other represents rubber plantations which were formerly under cultivation by British interests.

Firestone maintains a purchasing agency for crude rubber in Liberia, and for months engineers and rubber experts of the company have been investigating the possibilities of growing rubber in large quantities.

The Liberia project is in line with Mr. Firestone's campaign to have Americans raise their own rubber.

Minnesota Brings Suit to Test New Bus Regulation Law

ST. PAUL, Minn., June 7.—The state will test the new bus regulation law enforcement, having filed an injunction through Attorney General C. L. Hilton against a newly organized Arrowhead Parcel Transfer Co., alleged to be operating without permit from the Railroad and Warehouse Commission. Hearings will begin June 13 in the district court of Duluth, Minn.

The company alleges it is discriminatory against bus companies organized since the 1924-25 legislature began sessions. The law permits companies that already were in operation to continue until they get results upon their applications for permits to operate. Other companies must have permits in advance.

The Arrowhead formed in February and has operated since April 13, it is charged, between Duluth, Virginia, Chisholm, Grand Rapids and Aurora. The state asks the company be restrained from operating until it gets a permit and that it pay \$50 penalty.

TO RESTRICT TRAFFIC

MONTREAL, Can., June 8.—Auto bus traffic in the province of Quebec is to be restricted as much as possible, according to the Hon. J. E. Perron, minister of highways. Those who buy auto busses from now on will do so at their own risk. Mr. Perron stated in explaining traffic conditions and wear and tear on

the roads made it necessary to curtail the service. It is necessary for omnibus operators to have licenses, and by withholding all but a certain number the government hopes to control the operation of these vehicles. So far no licenses have been withdrawn, but Mr. Perron hinted that such might be the case if found to be necessary.

Blow Whistle for Each Car Sale

SAN ANTONIO, Texas, June 6.—A shrill whistle burst upon the air about ten o'clock one morning in San Antonio. Passersby pulled their watches to see if it was noon-time, but it wasn't. About 2:30 the whistle was heard again. The idlers investigated to see where the fire was but found none. The next day the whistle was heard again, first about eleven in the morning, then around one, and a third time at 4:30.

The wise ones started an inquiry. They found William Steinhardt of the Crockett Automobile Company, Hudson-Essex dealers, was doing some unique advertising.

Mr. Steinhardt had adopted a policy of having a specially installed whistle on his building blown every time a car sale was made by his forces.

"The whistle is to let the people of San Antonio know another Hudson owner had been added to the long list of happy ones," Mr. Steinhardt said. "We expect to blow the whistle at least twice daily, and hope to blow it four times."

E. M. McLean Is Appointed FWD General Sales Manager

CLINTONVILLE, Wis., June 7.—E. M. McLean has been named general sales manager of the Four Wheel Drive Auto Company here. Mr. McLean came to the FWD Company in 1916 from the Armored Truck Company of Cincinnati, Ohio.

S. H. Sanford, formerly sales division manager, has been named assistant sales manager.

MOTORIST FLOW TO INCREASE

NEW ORLEANS, La., June 6.—Alex G. Cruikshank, assistant general manager of American Automobile Association, Washington, D. C., who was in New Orleans recently, predicted an increasing tide of motorists from the north and northeast to New Orleans and the gulf coast of Mississippi the coming fall and winter. He reported much interest in road building in the southern states, and stated that it was going to be easier than ever to get into the central gulf states the coming fall.

Gardner Adds Five-Passenger Six-Cylinder Sport Sedan

New Car Listed at \$1,895 Is finished in Two-Tone Duco—Equipment Unusually Complete

ST. LOUIS, June 7.—Gardner Motors Company has just announced the addition of a five-passenger sport sedan listing at \$1,895 to its six-cylinder line.

The body is finished similarly to the eight-cylinder two-door Brougham, in a two-tone Duco, light green above the belt line and dark green below. The upholstery is mohair.

The unusually complete equipment includes nickel trimmed lamps and radiator, black leather top with coach irons, transmission and door locks, snubbers and bumpers, front and rear; 30x5.25 balloon tires mounted on natural wood wheels, with an extra tire and cover supplied, enclosed mechanical four-wheel brakes, automatic windshield wiper, one-piece rotary-lift windshield, cowl and dome lights, cowl ventilator, rear view mirror, trunk and trunk rack.

Akron Balloon Tire Output 50 Per Cent of Production

AKRON, Ohio, June 7.—Balloon tires now make up more than 50 per cent of the total output of approximately 115,000 tires manufactured daily in the Akron district, as a result of the constantly growing demand for the low pressure casings from all over the country.

With new molds and other machinery in operation, rubber factories here broke all records for balloon tire production during May. While exact figures are not yet available, shipments are reported to be the largest in the history of the industry.

TAKES NEW NAME

NEW YORK CITY, June 6.—The National Vigilance Committee of the Associated Advertising Clubs of the World, which during the past thirteen years has developed into an intensive nationwide system for the maintenance of the "Truth-in-Advertising" standard, announced at the World Convention at Houston, Texas, recently its incorporation under the laws of Delaware as the National Better Business Bureau. The change in name arises from the fact that the committee is affiliated with and coordinates the local work of the many Better Bureaus in leading cities of the country.

HOLD HUDSON-ESSEX CONTEST

ST. LOUIS, June 6.—Three hundred and ninety-four Hudson and Essex cars were sold in St. Louis by members of the Hudson-Essex metropolitan dealer forces during a sixty-day sales contest. The contest was conducted recently with a dinner at the Missouri Athletic Association at which the prizes totaling \$800 in cash were awarded.

Good Crops in Southeast Give Industry Optimistic Outlook

Used Car Situation Continues to Be Mixed Problem—Time Sales Average 75 Per Cent

NEW ORLEANS, La., June 7.—Compared with previous months, business in new and used cars in northern Louisiana was reported on the increase. Such business is probably not up to normal in southwest Louisiana on account of the uncertain outlook of the rice harvest. Truck crops, strawberries, tomatoes, in Louisiana and Mississippi, are yielding good returns.

Although this favorable situation creates optimism, it has not had time yet to be reflected generally in increased demands for automotive products.

Used Car Sales Few

Not so many used car sales were noted in the two states during the last month. The used car problem still continues a mixed situation, however, some dealers reporting overstocks and others shortages. Only a few repossessions were reported.

Car dealers reported credit conditions satisfactory with the trade still running about 75 per cent in time sales. Jobbers of parts and accessories reported collections improved over last month.

Olds Selects D. S. Eddins To Be General Sales Manager

DETROIT, June 7.—D. S. Eddins has been appointed general sales manager of Olds Motor Works, succeeding Guy H. Peasley, resigned. In making the appointment, I. J. Reuter, general manager of Olds, said there would be no change in the distributing policy of the Olds organization.

Mr. Eddins previous to his appointment was assistant sales manager of Chevrolet Motor Co. He has been connected with every phase of the automotive selling process for eighteen years. Starting as a retail dealer, he later became a distributor.

PABLO HOMS WITH MARMON

INDIANAPOLIS, June 2.—Pablo Homs, widely known among exporters and American business men, has been named special representative of the Nordyke & Marmon Company of Indianapolis in South America, according to an announcement by G. M. Williams, president of Nordyke & Marmon Company. He has assumed his new duties.

MANY ATTEND OUTING

CINCINNATI, O., June 6.—Families of all employees of 15 automobile companies were entertained on Saturday, May 30, at the annual picnic and outing arranged by the Leyman-Buick Company, Buick distributors, at Highland Grove Park near this city. This was the sixth annual event staged by the Leyman-Buick Company and was the largest ever held. An interesting program of athletic events was provided.

Attending the outing were the employes and families from the following Cincinnati companies: Leyman-Buick Company, J. Cook Motor Company, Deins Motor Car Company, Madisonville Auto Sales and Service Company, Henry Weil Company. Other companies included were the Leyman Motor Company, Louisville, Ky.; Dayton Buick Company, Dayton, Ohio; Cheviot Buick Company, Cheviot, Ohio; Covington Buick Company, Covington, Ky.; Highland Buick Company, Fort Thomas, Ky.; Lockland Motor Inn, Lockland, Ohio; Mitchell Avenue Buick Company, Saint Bernard, Ohio; Mutual Garage and Auto Company, Norwood, Ohio; Newport Livery and Garage Company, Newport, Ky.; and the Norwood Heights Garage, Norwood, Ohio.

Flint Organization Expands To Meet Southeast Demands

KANSAS CITY, Mo., June 6.—W. R. R. Tayler, who was appointed manager of the Kansas City Flint Company, distributing branch of the Flint Motor Company, a few weeks ago, has recently arranged for increasing the distribution of that company's products in this territory through twenty-two newly appointed dealers, who will cover certain specified sections in Missouri, Kansas and Oklahoma.

The names of these new dealers, and their respective addresses, follow:

Steinmeyer Bros., Alma, Kan.; Ora Houlton, Abilene, Kan.; W. R. Burke, Atchison, Kan.; Birney Motor Co., Bucklin, Kan.; Stafford & Thomas, Cameron, Mo.; Custer Motor Co., Cedarvale, Kan.; L. R. Stanley, Chanute, Kan.; Woodrich Motor Co., Concordia, Mo.; Beck Motor Co., Dodge City, Kan.; Butler & Creekmore, Gallatin, Mo.; E. F. Spina, Gardner, Kan.; H. L. Highley, Humboldt, Kan.; Hampsten Motor Co., Hooker, Okla.; Meyer Motor Co., Larned, Kan.; Star Garage, Lenexa, Kan.; J. T. Helm, Meade, Kan.; W. M. Hagan, Madison, Kan.; W. M. Hassick, Oregon, Mo.; Petrie-Smith Garage, Plainville, Kan.; J. L. Farris, Syracuse, Kan.; Weston Flint Co., Weston, Mo.

PRODUCTION IS INCREASED

RACINE, WIis., June 6.—The Racine Horseshoe Tire Company has launched upon a capacity production schedule in order to place itself in a position to fill all orders on hand. The plant is now employing about 300 men and the daily schedule turns out 3,500 tubes and 1,500 tires, with possibility for an increase to 4,000 tubes and 2,000 tires. Advance orders coming in are not unusually heavy, according to J. C. Lawrence, president of the company, "but the outlook is fine." The plant has been operating day and night for the past two years without losing an hour.

TAKES LONG TIME LEASE

MILWAUKEE, June 2.—The Wehr Co., 533-545 Thirtieth Street, Milwaukee, manufacturer of tractor attachments, Fordson specialties, etc., has taken a long-term lease of 50,000 sq. ft. of manufacturing space in the former Milwaukee gas engine plant of the Avery Co., Peoria, Ill., and will begin work immediately on the equipment of the area for the production of a so-called one-man power grader, used with small tractors.

Ford Factory and Branches Now Employ 161,000 Persons

Highland Park Plant Largest With 55,300 Employees—River Range Second With 52,800.

DETROIT, June 7.—Ford Motor Co. is now employing 161,000 persons in its many plants throughout the country. In the Detroit area 14,500 men have been added since March 1, this territory leading all others in employment.

The Highland Park plant with 55,300 men is still the largest employer but is now closely pressed by River Rouge ably under the peak employment total which has 52,800.

The Highland Park total is considerably of 1923, the decrease being due to the transference of several thousand men to the Rouge plant when the engine assembly and crankshaft departments were moved there. The number employed in the assembly branches in the United States now approximates 44,000.

Southeast Oakland Dealers Attend Atlanta Sales School

ATLANTA, Ga., June 6.—Under the direction of E. V. Jolliffe, manager of the sales promotion department of the Oakland Motor Car Co., dealers handling the Oakland in the southeastern states attended a special sales promotion school conducted at the Atlanta branch recently and took an intensive course in automotive selling.

Dealers were present from Georgia, Florida, Alabama and Tennessee, and were enthusiastic over the outlook for business the last half of this year. Sales have not been as good as they might have been the first two or three months of 1925, but have improved rapidly the last two months, and now are generally running better than at this time last year, particularly in the rural district where excellent crop prospects are causing farmers to invest more heavily in automobiles than they have in years.

WILL DISTRIBUTE HEADLIGHTS

DETROIT, June 6.—The following companies have been added to the list of distributors of the type 20 headlight manufactured by the Edmunds & Jones Corp.:

Tri-State Motor Corp., Evansville, Ind.; Overland-Phillips Co., Seymour, Ind.; Hauss & Co., Norwood, Ohio; Johnson Battery Co., Covington, Ky.; Carl H. Jackson & Son, Inc., Portland, Ore.; Fred Drury Battery Co., Marion, Ind.; McNutt & Co., Knoxville, Tenn.; Automobile Sales Co., Memphis, Tenn.; Moore Brothers Electric Co., Dallas, Texas.

ORGANIZE CLUTCH COMPANY

INDIANAPOLIS, June 6.—The American Spring Clutch Company is the name of a new automotive manufacturing company organized here recently to manufacture and develop a new spring clutch principle which already has been adapted for use as a drive for electric starters and as a new type of ratchet wrenches, etc.

Iowa Rural Dealers Sales Better Than Those for City

Present Weather Will Determine Automobile Business for Remainder of Year

DES MOINES, June 9.—Rural dealers over the state of Iowa have enjoyed better business during the past two months than those in the city. Registration figures for April indicate that dealers in the fourteen urban counties of the state sold only 34 more cars during April than for April, 1924. Rural dealers were responsible for a 1,000 car increase during the same period. While registration figures for May are not yet available, this same trend is noticeable.

Since the middle of May there has been a slight slackening in demand reported by both classes. Although many dealers and distributors are still behind on deliveries, the market trend has been noticeable. Dealers and distributors are proceeding with caution. It is probable that the decrease in demand is partially due to the agricultural outlook.

Weather conditions this spring have been unfavorable to crop growth. Extreme heat, followed by extreme cold and accompanied by a dryness that has almost amounted to a drought have retarded the crops. Freezing weather late in May killed from 5 to 10 per cent of Iowa corn. The weather of the next few weeks will probably determine the automobile business in Iowa for the remainder of the year. Crop conditions are not yet serious but will be unless an abundance of rain falls before long.

Truck and Bus Tire Demand Still Continues Unabated

AKRON, O., June 9.—While indications are that there will soon be a let down from the high tire production schedules in effect this spring, the demand for truck and bus tires continues unabated, and rubber manufacturers are having difficulty in filling orders for this line of business.

Production of large size, heavy duty casings will increase, instead of diminishing, during the summer months, as is usually the case, it is predicted here, on account of the tremendous growth of bus and truck transportation.

Nearly 1,000 bus and truck tires alone are being each day at the Goodyear Tire & Rubber Co. plant, the largest number ever produced by the company. Goodrich, Firestone, Miller, General, Seiberling, Swinehart, India and Mohawk also report large increases in this line of business.

DELIVER 565 CHEVROLETS

ST. LOUIS, Mo., June 6.—Delivery of 565 new Chevrolet automobiles in St. Louis during April was reported at the May meeting of the St. Louis Chevrolet Dealers' Assn., held recently at the City Club. Deliveries, it was stated, are considerably below sales, the factory being 700 cars behind orders.

Wealthy Arabs May Forsake Their Camels for Modern Automobile

WASHINGTON, June 6.—Wealthy Arabs threaten to discard camels in favor of automobiles, the Automobile Division of the Department of Commerce is informed.

A shipment of American motor cars consisting of 15 light five-passenger touring cars, nine three-quarter ton trucks and one six-cylinder touring car was recently shipped to Hokalla via Aden.

The purchaser, who lives in Hadraumaut, seven days' journey overland from Mokalla, intends to sell these cars to sheiks in his country.

These cars were taken apart at Aden and were transferred from Mokalla to their ultimate destination by camels. It is probable that this initial shipment of American cars into this territory may create a new market for American cars and general accessories.

STRAW HATS ARE REWARDS

PHILADELPHIA, June 6.—"Straw Hat Day," Harry B. Harper, president of the Studebaker Sales Co., Philadelphia, started a "straw hat contest." He offered to buy straw hats for each member of his organization, including the branches, as soon as each individual reached his quota for the month. In the case of the salesforce, including sales and branch managers, there is a specific quota to be met. In the instance of the service department, including service branches, each individual has to reach a specified quota of efficient work. Until each man reaches his quota, he is not permitted to wear a straw hat while on duty.

Wisconsin Gas Tax Law Brings Expected Returns

MILWAUKEE, June 8.—Wisconsin's new 2c gasoline tax is yielding a return fully equal to expectation, despite the fact that weather conditions have been erratic since spring opened. From April 1 to May 16, total receipts under the gallonage tax were \$275,574.38. At this rate a yield of more than \$3,000,000 will be made for 1925. The Standard Oil Co. collected the largest amount of tax, or \$78,213.52 for the period, while the Wadham's Oil Co., Milwaukee, was second with \$29,915.

Because it was claimed in some quarters that Wisconsin has become the dumping ground for all of the poor gasoline, the legislature is expected to pass a bill amending the state oil inspection law to provide for the installation of the distillate test for motor fuel, in conjunction with the Baume gravity test now in use.

AUTO EXPORTS RANK THIRD

WASHINGTON, June 6.—Export of automobiles and parts ranked third among the ten principal commodities in the American export trade of 1924, with a value of \$206,000,000, nearly 25 per cent higher than in 1923, it has just been made public here by the Foreign Commerce Department of the Chamber of Commerce of the United States.

WASHINGTON VETERAN DIES

WASHINGTON, June 6.—Allan E. Walker, one of the first Washingtonians to enter the automotive gasoline field died here suddenly this week following a heart attack.

National Bus Association Is Planned by Operators

CHICAGO, June 6.—Definite steps toward the formation of a national organization of bus operators will be taken in Chicago June 17-18 at a meeting to be held at the La Salle Hotel. A committee to initiate the conference and make arrangements was named at a meeting in Washington May 20-21 attended by all branches of the automotive industry and held in the offices of the A. A. A.

Recent decisions of the United States Supreme Court affecting interstate bus transportation and other important considerations have convinced leaders in the bus industry that institution of a central source of expression is necessary. It is desired to make the Chicago gathering as representative as possible and hence invitation to attend is extended to the entire bus operating industry. In states having no bus associations it is urged that independent motor carriers send delegates.

AUBURN SIGNS DEALERS

AUBURN, Ind., May 17.—New distributors and dealers who have recently been added to the Auburn organization are: Distributors, B. Anderson, Storm Lake, Ia.; Marmon Miami Company, Miami, Fla.; Lawson Auto Company, Portland, Ore.

Dealers—F. P. Rocco & Co., Long Beach, Cal.; Robinson & Warner, Sharon Springs, New York; Saco's Garage, Utica, New York; David Hart, Highland St., Amesbury, Mass.; Auburn Sales Co., Altoona, Pa.; I. V. Call, Clifton Forge, Va.; H. P. Zwemer & Son, Holland, Mich.; Auburn Sales Agency, Redlands, Cal.; T. S. Bunn, Bloomington, Ill.

SERVICES VULCAN SPRINGS

COLUMBUS, O., June 9.—The Ohio Auto Co., a Columbus corporation, recently chartered, has been organized with the election of Arthur I. Fishbaugh, president. Other officers of the company are Russell Graham, vice president and treasurer, and L. M. Ruhadel, secretary. This company has established its place of business at 50-52 S. Lazelle St. and services, repairs and assembles Vulcan auto springs. A 300 ton press has been installed with other machinery for pressing purposes. Simon Sooper is manager.



Along Automobile Row



PORTLAND, ORE.—The Spokane, Portland and Seattle Railway Company's motor bus line has purchased 15 motor stages belonging to the Columbia Stages, Inc., and will now be sole operator between Portland, Astoria and Seaside, Ore.

ATLANTA, GA.—P. L. Carroll has acquired a financial interest in the J. L. Carroll Company of Atlanta, distributors of the Kelly-Springfield tire line.

MOLINE, ILL.—A. M. Taylor has been appointed advertising manager of the Velie Motor Corporation.

LITTLE ROCK, ARK.—The Green Chevrolet Company have moved their sales and service departments to 411 W. Fifth St., where car sales and service will be handled entirely on ground floor.

INDIANAPOLIS.—The Matthews Auto & Tire Co., has been appointed Marmon distributor for approximately half of Iowa.

GRAND FORKS, N. D.—George Dixon has become associated with L. H. Fawkes of Minneapolis in a state agency for the Reo car at Fargo as the Fawkes Auto Co.

SPOKANE, WASH.—J. F. Stenstrom has been appointed general superintendent of the Transport Motor Company, Willys-Knight and Overland dealers.

ROCHESTER, N. Y.—For the third time since last Fall the D. H. Tiffany Corporation is enlarging its replacement parts department, permitting it to carry one of the largest stocks of new replacement parts in Western New York.

MEMPHIS, TENN.—The entire building at the southeast corner of Union Avenue and South Dudley St., has been leased to the John T. Fisher Motor Company, dealers in Reo automobiles and trucks. It contains 30,000 square feet.

NEWARK, N. Y.—The Malco Oil Company has moved to new quarters. Tanks with a capacity of 200,000 gallons will be erected, doubling its present storing capacity.

FREERPORT, ILL.—Robert A. Wilson has been appointed chief engineer for the Hoefer Manufacturing Co., of this city.

SALT LAKE CITY.—W. L. Owen, salesman of Federal division of the Fisk Tire Co., is now manager of the local branch of the Allen Oil Co. He is succeeded by Douglas McGhie, well known in local tire and rubber circles.

CHICAGO.—R. B. Thornton, former Durant man, has succeeded C. A. Englebeck as Chicago branch manager for the Peerless Motor Car Company. Mr. Englebeck has not announced future plans.

SANTA MONICA, CAL.—William Davis has sold out his interest in the Palisades Motor Company, Inc., Santa Monica, Cal., to E. Ellis. Harry Ferrenbeck, formerly with the Walter M. Brown Company, Los Angeles, has been appointed sales manager of the company.

QUINCY, ILL.—The Hover Motor Sales Company has been appointed distributor for the Federal truck in the western Illinois territory, and will display the various models at the new garage and sales agency on Vermont Street.

DAVENPORT, IA.—William Pollick, Davenport, Iowa, auto dealer, has been named Star and Durant agent in that community, with salesroom at 216 Iowa Street, Davenport.

FRESNO, CAL.—H. J. Lake, formerly of the sales department of Don Lee, Cadillac distributor in California, has been made manager of the Don Lee store here.

COLUMBUS, O.—The Electric Power Maintenance Co., has moved to 208-10 N. Third street. With the move service to automobiles was discontinued and parts are being handled exclusively.

ST. PAUL.—The National Lead Battery Company recently established a factory branch at Los Angeles. When completed the plant will represent an investment of approximately \$250,000.

SEATTLE, WASH.—Chanslor & Lyon Company have reorganized their tire business, the manufacturing end of which will now be known as the C & L Tire and Rubber Company.

SACRAMENTO, CAL.—The local Nash agency of Paul V. Amick has been purchased by Coombs-Vogel Company, who recently disposed of the North Sacramento Chevrolet agency to the Superior Motor Company.

ST. LOUIS, MO.—A dinner celebrating its second anniversary and its acquisition of a plant in East St. Louis was held here recently by Victor Motors, Inc.

CINCINNATI.—Haberer and Company, manufacturers of commercial truck bodies Cincinnati, has been incorporated for \$150,000. The company will be operated by the five sons of Jacob F. Haberer, Sr., who founded the concern forty years ago.

SPRINGFIELD, MASS.—Two more new agencies have been added to the two here. The Springfield Peerless Company has been formed with F. O. Pitman and the Freeman Motors Company has been formed by William Freeman.

RICHMOND, MO.—C. H. Walker, of this city, has accepted the agency for the Hudson-Essex motor car for Richmond and Ray counties.

NEW ORLEANS, LA.—T. J. Fontelieu is now president of the New Orleans Buick Co., replacing J. H. Baldwin who has gone into the cotton business.

FORT WAYNE, IND.—The Marion Motor Bus Corporation, which operates the Gold Star Route between Marion and Fort Wayne, Indiana, has added three more Mack sedan busses to its fleet.

SALT LAKE CITY.—The Bimel Spoke and Wheel Co., of Portland, Ore., is making warehouse connections here for immediate use.

CARUTHERSVILLE, MO.—Ark Motor Company, Inc., \$5,000.00 to buy and sell automobiles and automobile parts. F. N. Dawson, Deering, Mo., F. H. Manton, Deering, Mo., Morrell, DeReign, O. H. Andrews, Memphis, Tenn.

SPRINGFIELD, ILL.—The Capital Tire Company has been organized here and opened an accessory store at 208 North Sixth Street. Capital stock has been fixed at \$10,000.

NEW ORLEANS.—J. D. Cathey, Inc., dealers in Ford cars, tractors and other Ford products moved this week to their new home at 919 Girod Street, New Orleans.

KNOXVILLE, TENN.—The Edmunds & Jones Corporation of Detroit announces the appointment recently of McNutt & Company of Knoxville as distributors of the new E. & J. type 20 headlight in Knoxville and adjacent territory.

CHICAGO, ILL.—A. P. Emmert, general superintendent of the Warner Gear Company, has resigned to take charge of the Axle plant of the Hudson Motor Car Company at Detroit.

MINNEAPOLIS.—J. F. McGovern, All-American football star has become vice president of the Lake Street Motor Sales, Inc., in charge of sales.

OMAHA, NEB.—The Texas Company is moving its district offices to Minneapolis and will include its Helena, Mont., business. Western business will be centralized in Denver, Minneapolis and Chicago.

HOUSTON, TEX.—The Stromberg Products Company, 1018 Leeland Avenue, has been appointed distributor for the Stromberg Motor Devices Company in the Houston district.

KOKOMO, IND.—The Kokomo Automotive Mfg. Co., announces the appointment of R. R. Elliott, as sales manager of the Kokomo Checker division of the local company.

ATLANTA, GA.—L. S. Bethea, formerly with the Motor Parts Corporation has joined the Southern Bearings Company as assistant manager.

INDIANAPOLIS.—The Peoples Motor Coach Company of Indianapolis has just placed six more passenger Mack city busses in service on the five city routes they operate.

BURLINGTON, WIS.—The Burlington Automotive Company, owned and managed by W. L. Carpenter and Elmer Eppers, is letting contracts for the erection of a one-story brick and concrete sales and service building, 72 by 192 ft., with basement.

DECATUR, ILL.—The Reo Motor Sales Co., has taken the Marmon agency for this vicinity and is showing the line in its show rooms at Franklin and William streets.

DALLAS, TEX.—P. D. Grouch, assistant manager of the Willys-Overland Branch here has accepted a similar position with the company at New York. His successor at the Dallas branch has not been named.

BREVARD, N. C.—The Aero Shock Absorber Co., has leased a building here and is establishing a plant for the production of the Aero shock absorber.

SPRINGFIELD, MASS.—S. S. Smith has been appointed manager of the Springfield branch of the Stewart Truck Corporation of New England. He has been connected with Boston headquarters for eight years.

BALTIMORE, MD.—R. C. Buckley has been appointed special sales representative for the F. G. Schenuit Rubber Company, which manufactures, distributes and retails double-grip air cooled tires.

ROCKFORD, ILL.—The Luhmann-Jeanmairet Motor Company has opened a new sales agency and service station to take care of the distribution of the Nash car.

MILWAUKEE, WIS.—The J. Jaeger Motor Co., 1195-1199 National Avenue, Milwaukee, established in 1910, has been assigned a Paige and Jewett franchise by the Paige Wisconsin Company, Milwaukee, state distributor.

TORRINGTON, CONN.—Granniss, Denegar and Swett, Reo and Hupp dealers have purchased a new sales and service building on Main Street which is more advantageous and providing more floor space.

MIAMI, FLA.—The William A. Estaver Company of Miami, Hupmobile distributor in Florida has moved into its new home at 220 Northeast Thirteenth Street.

NEW ORLEANS, LA.—The New Orleans Motor Company authorized dealers in Ford and Lincoln cars and Fordson tractors, was recently acquired by a new company, headed by Olin Linn, president.

DES MOINES.—Carl Youngstrom has been selected as Des Moines distributor for Diamond pins, National bushings and Wonder piston rings.

With the Associations

Merchants Association Formed

OTTAWA, ONT., June 9.—A new section of the Retail Merchants Association has been organized and is known as "The Garage and Service Station Section." This new section is distinct from the Automobile Section.

The newly elected officers and members discussed the practice of car dryers and service station men to have gasoline in tanks which were not qualified as meeting with the requirements of the law. When fire occurred and it was found that the gas had not been stored in such tanks failure to collect insurance would result.

The officers elected were as follows: President, R. Clarke Cummings; first vice president, T. Baird; second vice president, D. Anderson; third vice-president, J. P. Neil; secretary, J. A. Blount; treasurer, J. Berthiaume.

Favor Time Payments

PITTSBURGH, June 9.—At least 75 per cent of all automobiles sold in the Pittsburgh territory are sold on the time payment plan, according to the Pittsburgh Automobile Dealers' Association.

The local automobile dealers believe that the time payment plan is sound, effective and permanent and one which is proving of benefit to the automobile industry.

So few cars are repossessed that the percentage is negligible, according to the dealers.

In an article just released the dealers state that if it were not for the time payment plan, the prices of automobiles would be a great deal higher, since not as many of them would be sold.

Win Court Decision

LOS ANGELES, June 7.—The California Supreme Court has declared unconstitutional the law passed by the legislature in 1923 which established a tax of four percent on the gross revenue of motor vehicles operated for compensation.

The law was attacked and the case prosecuted by representatives of the Truck Owners Association of Southern California and the Motor Carriers Association on the basis of discrimination inasmuch as certain types of vehicles such as hotel buses, taxicabs and those operating exclusively within the corporate limits of a municipality were exempted.

Cincinnati Elects Directors

CINCINNATI, June 9.—Frank Schrage, Fred Gage, Harry Franz and Ralph Orr have been elected directors of the Cincinnati Battery Service Association which held its election on May 28.

Judge William Alexander spoke at the meeting on the "Benefits of Organizations."

Milwaukee's President



Dr. F. W. B. Achen

Dr. F. W. B. Achen, newly elected president of the Milwaukee Automobile Dealers' Association, who is head of the Achen Motor Car Co., distributors of the Chandler and Cleveland line.

Will Work for North Dakota

BISMARCK, N. D., June 6.—Sustained advertising to divert automobile tourists through North Dakota, centralized publicity for the state and complete service for tourists and automobile owners are the main purposes of the North Dakota Automobile Association, announced by the new secretary, James S. Milloy. Tourists' guides to the state are being placed with 400 information bureaus in the country and Canada. A state strip map has been issued and a system of branch bureaus is being worked out. Headquarters will be at Fargo. The association expects to raise its quota from 1500 to 5000 members this season, and to function as a general publicity bureau for the benefit of settlers looking for farm lands.

Named S. A. E. Delegate

MILWAUKEE, June 7.—Harry L. Horning, president, Waukesha Motor Co., and head of the S. A. E.; Alexander G. Herreshoff, of the Rushmore Laboratories, Plainfield, N. J., and F. M. Young, vice-president of the Racine Radiator Co., were speakers at the May session of the Milwaukee section, S. A. E. Mr. Young was elected delegate to the summer meeting at White Sulphur Springs, W. Va., June 16-19. He recently was elected treasurer of the Milwaukee section. J. B. Armitage is chairman, George W. Smith, vice chairman, and Arthur J. Wollensak, secretary.

To List "Better Service"

MINNEAPOLIS, Minn., June 6.—The Minnesota Motor Trade Association is offering protection to the summer motor tourist by preparing for general circulation a list of "better service" garages alphabetically arranged, which the association guarantees for service. The booklet carries the pledge the undersigned have taken in regard to prompt service, efficient service, standard merchandise and fair prices. Complaints referred to the main office will be taken up by Secretary A. N. Benson and adjusted. Dependable garages will carry the association insignia. The association has a membership of 700 dealers and stations.

Condemn Seized Car Sales

MONTREAL, aCnada, June 6.—Government practice of selling automobiles confiscated under the Quebec liquor act was unanimously condemned at the annual meeting of the Montreal Automobile Trade Association.

The speakers maintained that in the majority of cases automobiles used to transport liquor illegally were stolen ones. They held that the manufacturers of such machines should be given ample opportunity to find the rightful owners before the government took it upon itself to dispose of them.

The following officers were elected for the year: President, Florian Leduc; vice president, J. E. Smtih; treasurer, Major F. T. McKean, D. S. O.; secretary, Alex Renaud. Directors elected were J. O. Linteau, A. M. Jacques, F. T. Just. The directors re-elected included Florian Leduc, J. O. Linteau, J. E. Smith, Alex Renaud and A. M. Jaques.

Man Is Honored

DETROIT, June 9.—Lee W. Brice, purchasing agent of the Detroit plant of Continental Motors Corp., was elected national vice-president of the National Association of Purchasing Agents at the annual meeting in Milwaukee. Mr. Brice has been associated with Continental for many years and is well known in the industry.

Harrisburg Dealers Hear Mayor

HARRISBURG, PA., June 6.—Mayor Hoover addressed the last weekly meeting of the Harrisburg Motor Dealers' Association on the present traffic regulation. Dealers were asked to assist in the drafting of a new traffic code. Application of the flat rate system was the other subject under discussion.

Is Elected Director

SALT LAKE CITY, June 7.—J. A. Jones of the Salt Lake City branch, Firestone Tire and Rubber Co., has been elected a director of the Intermountain Credit Men's Association.

California Governor Refuses To Sign Increased Tax Bill

Estimated That Motorists Will Save \$13,000,000 in Next Two Years As a Result

LOS ANGELES, June 9.—By refusing to sign the bill passed at the recent session of the Legislature providing for an increased tax of one cent per gallon on motor vehicles fuels, Governor Richardson prevented it from becoming a law.

It is estimated that his action will save the motorists of this state \$13,000,000 during the next two years.

The Governor gave as his reason for permitting the bill to die that its passage by the Legislature was accomplished through riders being attached which stipulated that certain highways would have to be constructed from the funds that there would have been an interval between the time the law would have become effective and the expiration of the present law providing for a two-cent tax during which time no tax could have been collected. In several particulars the measure was unconstitutional, the governor said.

Rochester Seeks to Alleviate Downtown Traffic Congestion

ROCHESTER, N. Y., June 6.—The Western New York Gasoline Dealers Association, comprising more than 300 dealers in Rochester and vicinity, at a meeting last week appointed a committee to confer with city officials in an effort to alleviate traffic congestion in the downtown district, which they claim is hurting business for downtown dealers.

The dealers maintain that the distance in which a car may park from a hydrant could well be cut from 10 to 5 feet and still leave plenty of room for firemen to attach their hose in event of a fire.

Another evil, according to the dealers, are loading zones seldom used, but where cars are not allowed to park. These take from 10 to 15 feet each and prevent parking, with a loss of business to downtown gasoline dealers and merchants.

CHEVROLET OFFICIAL OPTIMISTIC

DETROIT, Mich., June 8.—High automotive production will continue well through the second half of 1925 it is expected by R. H. Grant, sales manager of the Chevrolet Motor Company, who has spent three months of the current year visiting in direct contact with Chevrolet dealers. His travels have taken him to most of the large cities and more than half the states.

GRAY OFFICIAL RESIGNS

DETROIT, June 6.—Rex F. Glassen has resigned as advertising manager of Gray Motor Co. to join the Cram Services Organization in Detroit. Mr. Glassen is well known in the industry and has served the Gray Company since its organization.

Coming Motor Events

Automobile Shows

Atlanta	June	Atlanta Automobile Show.
Boston	Oct. 10-17	World's Rubber and Tropical Exposition.
Dallas, Tex.	Oct. 10-25	Annual Automobile Show, State Fair Automobile Building, under the auspices of the Dallas Automotive Trade Association. J. W. Connell, manager.
De Pere, Wis.	Aug. 31-Sept. 21	Annual Automobile Show under the auspices of the Automobile Division of the Green Bay Association of Commerce.
Fresno, Cal.	Sept. 28-Oct. 3	Fresno Motor Car Dealers Association. Fifteenth Annual Show in connection with Fresno District Fair.
Grand Rapids, Mich.	Sept. 7-12	Grand Rapids Automobile Dealers Association, Seventh Annual Show in connection with West Michigan Fair, Wm. T. Morrissey, manager.
Oklahoma City, Okla.	Sept. 26-Oct. 3	Annual State Fair and Exposition. Passenger cars and accessories.
Sacramento, Cal.	Sept. 6-12	Automobile Exhibits in Diamond Jubilee State Fair.
Shreveport, La.	Oct. 24-Nov. 8	Twentieth Annual State Fair showing passenger cars, trucks and tractors.
Spokane, Wash.	June 16-18	Sixth Annual Sportsmen and Tourist Fair.
Syracuse, N. Y.	June 3-13	First Summer Automobile Show in connection with Centennial exposition.
Wheeling, W. Va.	Sept. 7-12	Wheeling Automobile Dealers Association, Eleventh Annual State Fair, Exposition Building.
White River Junction, Vt.	Sept. 15-18	Nineteenth Annual Twin State Fair. Passenger cars, trucks and accessories. F. L. Davis, manager.

Races

Altoona, Pa.	June 13	
Altoona, Pa.	Sept. 7	
Belgium	July 5	European Grand Prix Race.
Charlotte, N. C.	Oct. 24	
Fresno, Calif.	Sept. 30	
Laurel, Md.	June 20	A. A. A. Race, Baltimore-Washington Speedway.
Laurel, Md.	Oct. 10	A. A. A. Race, Baltimore-Washington Speedway.
Los Angeles, Cal.	Nov. 26	
Monza, Italy	Sept. 6	Italian Grand Prix Race.
Paris Montlhery track	July 26	French Grand Prix.

Foreign Shows

Berlin, Germany	Nov. 26-Dec. 6	Annual Automobile Show in the Kaiserdamm.
Buenos Aires, Argentina	Oct. 3-13	Pan-American Road Congress.
London, England	Oct. 8-17	Olympia Passenger Car Show.
London, England	Oct. 29-Nov. 7	Annual Truck Show.
Rio de Janeiro	June	Rio Automobile Show.

Conventions

Brussels, Belgium	June 21-26	International Chamber of Commerce.
Buenos Aires, Argentina	Oct. 3-13	Pan-American Road Congress.
Chicago	June 19	Automotive Manufacturers' Association Meeting.
Cedar Point, O.	June 19-20	Annual Convention Ohio State Auto Association.
Cleveland	Sept. 14-19	Annual Convention and Exposition of American Society for Steel Treating.
Cleveland	Sept. 15-16	S. A. E. production meeting and exhibition.
Colorado Springs, Colo.	June 22-27	Summer Convention, Automotive Equipment Association, Bradmoor Hotel.
Des Moines, Ia.	Nov. 12-13	Automotive Merchants' Association Convention.
Everett, Wash.	July	Annual state convention Washington Automotive Trades Association.
Montreal, Que.	Oct. 7-10	Fall convention of the Motor and Accessory Manufacturers Association.
Philadelphia	September	S. A. E. Automotive Transportation meet.
Pittsburgh, Pa.	Oct. 12-14	Pennsylvania Automotive Association Convention.
Seattle, Wash.	June 24-26	National Foreign Trade Council Convention.
South Bend, Ind.	June 11-12	Advertising Managers Members of N. A. C. C. in conjunction with M. A. M. A.
St. Louis	Nov. 17-19	Annual Convention of National Tire Dealers' Association.
Tuscaloosa, Ala.	July 20-21	Midsummer meeting of the Alabama Automotive Trades Association.
White Sulphur Springs, W. Va.	June 15-19	S. A. E. Summer Meeting.

1925 to Compare Favorably With Peak Years, Says Sloan

G. M. President Finds Business Creditable From Makers' Standpoint and Weakness in Retail Field.

CINCINNATI, June 8.—Voicing optimism regarding the future of general business, with the automotive industry keeping pace, Alfred P. Sloan, Jr., president of General Motors Corporation, declared that 1925 would compare most favorably with the peak years in so far as motor vehicles are concerned.

Mr. Sloan and his party, traveling in a private car, stopped off in Cincinnati for a day after visiting the larger cities on the Eastern coast and also the Gulf states as far as Houston, Texas. He predicted that another year would find the open car virtually eliminated, except in distinctive southern territory, where roads are bad and buying power is limited.

The General Motors party was entertained at luncheon by Harry S. Leyman, president of the Leyman-Buick Company, Cincinnati, on May 28. In a short talk following the luncheon, Mr. Sloan stated that "the object of our trip has been to get first hand information about conditions throughout the United States in the automobile business.

Weakness in Retail Field.

"At this time the automobile business from the manufacturers' standpoint is very creditable. The weakness lies in the retail field. It is because of a sincere desire to correct these conditions that this and similar trips are being made."

Mr. Sloan was accompanied by Donaldson Brown, vice president, General Motors Corporation; H. H. Bassett, vice president, General Motors Corporation, and president, Buick Motor Car Company; Lawrence P. Fisher, vice president, General Motors Corporation and president, Cadillac Motor Company; C. S. Mott, vice president, General Motors Corporation, and J. J. Schumann, vice president, General Motors Acceptance Corporation.

TO ENTER AMERICAN FIELD

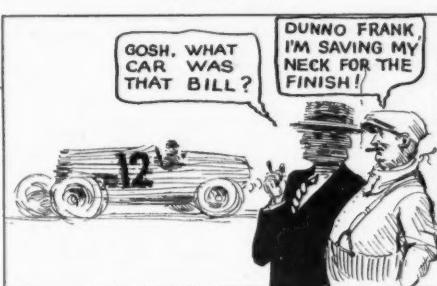
ONTARIO, Que., June 6.—Aero Cushion Inner Tube and Rubber Co. of Ontario, Ltd., at their recent annual meeting decided to enter the American market with their inner puncture proof tube and arrangements have been completed for the establishment of a factory near Pittsburgh. In the meantime tires are being supplied for the American company by the Canadian plant. This company is now producing an inner tube for balloon tires which it is fully expected will still further increase the demand.

NAMED BRANCH MANAGER

TOLEDO, June 7.—Joseph H. Zwee, who has been in the automobile business for 21 years, has been appointed by W. C. Durant, manager of the new Toledo-Flint Co., a new factory branch, which displaces the former Willis Day-Flint Co., distributors, at Toledo.

SQUEEKS *and* RATTLES

It's Pete!



Secret?

"Why didn't you tell me this car didn't run afore I bought it?"

"Wal, the feller that sold her to me didn't say nothin' about it so I thought it was a secret."

Mr. Marion Churchman, while driving home from the State Farm, on the Sproule Road, Saturday afternoon, was run into by another automobile. Mr. Churchman suffered a broken front wheel and had his front mud-guard badly bent.

—From the Springfield Township (Pa.) Citizen.

Just a Slip

"Better not drive so fast."

"Why not?"

"It might annoy that motorcycle cop who has been following you for the last ten minutes."

—Princeton Tiger.

Page Mr. Coolidge

A New York reporter was arrested because he left his automobile parked three hours while waiting for Mr. Dawes.

OPENS NEW TWO-STORY HOME

ST. LOUIS, June 8.—A new building, two stories high, at 1320 South Grand boulevard has been opened by the Price Motor company, authorized Ford dealer. The company was formerly located at 1312 South Grand but its increased business made larger quarters imperative. More than 1,000 customers and friends of the company attended the opening of its new building. A reception, followed by a dance and buffet luncheon constituted the program for the formal inauguration of the building.

MARMON ADDS DEALERS

INDIANAPOLIS, June 6.—Nordyke & Marmon Company announces the following new dealers and associate dealers:

Dealers—Shamokin, Pa., Ken-Mo Auto Exchange; Santa Rosa, Cal., A. M. Stuflebean; Hazleton, Pa., J. Jason Bigelow; Pittston, Pa., George Rutledge; Port Jarvis, N. Y., Ollear Motor Sales; Locust Valley, L. I., N. Y., Park Heights Garage.

Associate Dealers—Calexico, Cal., Harry B. Stuart; Chillicothe, O., Edwin C. Clough.

The Added Burden

Nelson: The poor we have with us always.

Riley: Yes, and aren't their cars a nuisance?

—Kansas City Star.

A Revision

"I want the man in the pretty moon."

Cries the little girl of two.

When thirty-two, why, then she says,

"One in a Ford will do."

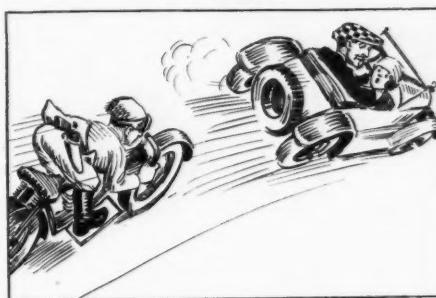
Please Hurry!

Oh, Salesman, I hate to disturb

Your calm that is greatly admired,
But my flivver's out there on the curb
And the parking time's nearly expired.

—Washington Star.

Both Right.



Exuberant Niece (motoring): Go on, Uncle—let her rip! Dash it all, you can only die once!

Prudent Uncle: I know, my dear. But I can be fined any number of times.

—London Opinion.

Willys-Overland Entertains Members of \$100,000 Club

TOLEDO, June 7.—Sixty members of the Willys-Overland Co., \$100,000 Club—an organization of retail salesmen of the company throughout the country whose sales for the year top \$100,000—were entertained at the plant here for a two-day outing, concluding with a banquet on Friday evening.

They were entertained by President John N. Willys with a banquet at Toledo Club on Wednesday evening. Willys told the men that the company was in the soundest financial condition in many years, with \$50,000,000 in quick assets, sufficient cash to care for all current requirements, and only \$8,000,000 bonds due a million a year.

NELSON FAVORS CASH BASIS

NELSON, B. C., June 6.—Motor dealers of Nelson are using every endeavor to place their gas and oil business on a cash basis, beginning with the present month. Closing hours of the service stations in the city are now 8 o'clock P. M. on week days, with 9 P. M. on Saturdays and noon on Sundays.

Prices and Weights of Current Passenger Car Models

SHIP.	WT. PASS.	BODY STYLE.	PRICE	SHIP.	WT. PASS.	BODY STYLE.	PRICE	SHIP.	WT. PASS.	BODY STYLE.	PRICE						
AJAX																	
..... 5-p	Touring	\$865	3309 5-p	Coach	1,595	3920 3-p	Straight "8"	3650 5-p	Brougham	2,200							
..... 5-p	Sedan	995	3309 5-p	Chummy Sedan	2,045	3765 5-p	Roadster	2,300									
ANDERSON "41"			3469 5-p	Met. Sedan	2,195	3700 5-p	Phaeton	4,655									
2650 5-p	Touring	\$1,195	3428 5-p	Sedan 4 d.	1,995	3920 7-p	Phaeton	4,655									
2675 4-p	Sp. Touring	1,445	3521 7-p	Sedan	2,195	3980 4-p	Sp. Phaeton	4,655									
2925 2-p	Coupe	1,425	3598 7-p	Limousine	3,095	..... 4-p	Coupe	4,655								
2875 5-p	Sedan	1,695	CHEVROLET														
2925 5-p	Sp. Sedan	1,895	"Superior" (Series K)														
..... "50"			1755 2-p	Roadster	\$525	3920 3-p	"D"	3650 5-p	Roadster	1,500							
2975 7-p	Touring	1,595	1870 5-p	Touring	525	3800 2-p	Roadster	2,600									
3200 7-p	Sedan	1,945	2015 2-p	Utility Coupe	715	3550 5-p	Touring	2,600									
APPERSON "6"			2110 5-p	Coach	735	3900 7-p	Touring	2,750									
..... 5-p	Phaeton	\$1,695	2220 5-p	Sedan	825	3550 5-p	Touring Sedan	3,400									
8106 5-p	Sp. Phaeton	1,750	CHRYSLER														
3145 4-p	Coupe	2,250	2805 4-p	Roadster	\$1,625	2800 2-p	Roadster	2,600									
3470 5-p	Sp. Sedan	2,250	2780 5-p	Touring	1,395	2850 5-p	Touring	2,600									
..... 5-p	Brougham	2,150	2785 5-p	Phaeton	1,495	2745 5-p	Touring	2,750									
..... "ST 8"			..... 5-p	Coach	1,545	2760 2-p	Coupe	2,750								
..... 5-p	Sp. Phaeton	2,350	2935 4-p	Brougham	1,895	2895 5-p	Club Sedan	3,375									
..... 3-p	Coupe	2,750	3060 5-p	Sedan	1,825	..... "E" 8										
..... 4-p	Brougham	2,650	3085 5-p	Imperial Sedan	2,065	2835 2-p	Roadster	1,795									
..... 5-p	Sedan	2,750	3090 5-p	Crown Sedan	2,195	3015 5-p	Touring	1,895									
AUBURN "4"																	
..... 5-p	Touring	\$ 795	3225 5-p	Spec. Roadster	900	3225 5-p	Touring	1,795									
..... "6-43"			3225 5-p	Spec. Touring	950	3135 5-p	Touring	1,795									
2610 5-p	Special Touring	1,395	3235 4-p	Coupe	1,160	..... 2-p	Coupe	2,095								
2900 5-p	English Coach	1,945	2505 5-p	Sedan	1,190	3295 4-p	Coupe	2,095									
2885 5-p	Sedan	1,595	2430 5-p	Spec. Sedan	1,310	3410 5-p	Sedan	2,195									
..... "8-88"			..... 5-p	Coach	1,050	JEWETT "23-25"										
..... 4-p	Sport Roadster	1,975	3225 5-p	Spec. Coach	1,100	3025 4-p	Roadster	\$1,630									
..... 4-p	Club Roadster	2,075	2600 5-p	Demi Sp. Tour.	1,220	3015 5-p	Touring	1,205									
..... 4-p	Sport Brougham	2,250	2600 5-p	Sp. Touring	1,420	2835 2-p	Bus. Coupe	1,340									
..... 5-p	Sedan	2,350	2779 5-p	Sp. Sedan	1,495	3025 5-p	Sedan	1,580									
BARLEY "6" 6-50			2779 5-p	Coach Sedan	1,295	3305 5-p	De Luxe Sedan	1,780									
2750 5-p	Touring	\$1,395	2900 5-p	Sedan	1,495	3000 5-p	Coach	1,260									
2800 5-p	Sp. Touring	1,495	2779 5-p	Brougham 3d	1,265	3110 5-p	Sp. Brougham	1,555									
3100 5-p	Sedan	1,850	..... "6-51"			JORDAN "K"										
3150 5-p	Sp. Sedan	2,250	3200 5-p	Demi Sp. Tour.	1,220	(120 in. W. B.)											
BUICK "Standard"			3200 5-p	Sp. Touring	1,420	3420 5-p	Brougham 4 d.	\$2,385									
2750 2-p	Roadster	\$1,150	3200 5-p	Sp. Sedan	1,495	3375 4-p	Victoria	2,385									
2920 5-p	Touring	1,175	3200 5-p	Coach	1,495	Series "A"											
2960 2-p	Coupe	1,375	3200 5-p	Coupe	2,15	2600 5-p	Playboy Road.	2,575									
3075 4-p	Coupe	1,565	3200 5-p	Sedan	2,265	3250 5-p	Touring	2,575									
3185 5-p	Dbl. Serv. Sedan	1,475	3200 5-p	Brougham	1,490	3450 3-p	Friendly "3"	2,875									
3245 5-p	Sedan	1,665	3200 5-p	Sp. Brougham	1,620	3625 5-p	Brougham	2,875									
3050 5-p	Coach	1,295	3200 5-p	"8-88"		3520 4-p	Victoria	2,775									
..... "Master"			3200 5-p	Sp. Touring	2,165	3470 7-p	Sedan	2,975									
(120 in. W. B.)			3200 5-p	Sp. Touring	2,265	3800 7-p	Suburban Sedan	3,375									
3225 2-p	Roadster	1,365	3200 5-p	Sedan	2,265	KISSEL "55"											
3465 5-p	Touring	1,395	3200 5-p	Coach	1,495	3130 2-p	Speedster	\$1,895									
3850 5-p	Sedan	2,225	3200 5-p	Coupe	2,15	3200 5-p	Sp'dster De Luxe	2,185									
3560 5-p	Coach	1,495	3200 5-p	Sedan	2,265	3200 5-p	Speedster	1,995									
..... "Master"			3200 5-p	Coach	1,495	3530 2-p	Enc. Speedster	2,285									
(120 in. W. B.)			3200 5-p	Coupe	2,15	3200 5-p	Enc. Sp'd'r De L.	2,785									
3485 8-p	Sp. Roadster	1,750	3200 5-p	Sedan	2,265	3190 4-p	Tourster	1,895									
3550 5-p	Sp. Touring	1,800	3200 5-p	Coach	1,495	3200 5-p	Tourster De L.	2,085									
3610 7-p	Touring	1,625	3200 5-p	Roadster	1,695	3200 5-p	Phaeton	1,685									
3745 3-p	Country Club	2,075	3200 5-p	Sp. Tourer	3,500	3200 5-p	Phaeton De L.	1,835									
3770 4-p	Coupe	2,125	3200 5-p	Phaeton	3,500	3200 5-p	Touring	1,785									
3905 5-p	Brougham Sedan	2,350	3200 5-p	Petite Coupe	4,500	3200 5-p	Touring De L.	1,985									
4080 7-p	Limousine	2,625	3200 5-p	Petite Sedan	4,500	3430 4-p	Coupe	2,185									
3995 7-p	Sedan	2,425	3200 5-p	De Luxe Coupe	4,750	3200 5-p	De Luxe	2,585									
3850 7-p	Town Car	2,925	3200 5-p	Sedan 4 d.	1,680	3200 5-p	Brougham Sedan	2,550									
CADILLAC "V-63 Standard Line"			3200 5-p	Brougham	1,760	3200 5-p	Brougham	2,685									
4190 2-p	Roadster	\$3,185	3200 5-p	"6-60"		3200 5-p	Sp. Sedan	2,685									
4280 7-p	Touring	3,185	3200 5-p	Sp. Touring	1,785	3200 5-p	Coach	2,685									
4200 4-p	Phaeton	3,185	3200 5-p	Touring	1,985	3200 5-p	De Luxe	2,685									
4240 5-p	Coach	3,185	3200 5-p	Coupe	2,195	3200 5-p	Sp. De Luxe	2,685									
4610 7-p	Sedan	3,885	3200 5-p	Sedan	2,285	3200 5-p	Sp. Sedan	2,685									
4380 4-p	Victoria	3,485	3200 5-p	Brougham 4 d.	2,735	3200 5-p	Touring	1,985									
4525 5-p	Landau	3,835	3200 5-p	"40"		3200 5-p	Coupe De Luxe	2,585									
4655 7-p	Std. Imperial	4,010	3200 5-p	Touring	1,285	3200 5-p	Brougham Sedan	2,550									
..... "Custom Built"			3200 5-p	Sedan 4 d.	1,680	3200 5-p	Brougham 2 d.	1,895									
(138 in.)			3200 5-p	Brougham	1,760	3200 5-p	Sedan De Luxe	2,825									
4260 2-p	Coupe	3,975	3200 5-p	"6-60"		4070 7-p	Sedan De Luxe	2,825									
4400 5-p	Coupe	4,350	3200 5-p	Sp. Touring	1,785	4010 7-p	Berline Sed. De L.	3,355									
4490 5-p	Sedan	4,550	3200 5-p	Touring	1,985	3530 5-p	Victoria	2,285									
4590 7-p	Suburban	4,650	3200 5-p	Coupe	2,195	3200 5-p	Victoria De Luxe	2,685									
4655 7-p	Imp. Suburban	4,950	3200 5-p	Sedan	2,285	..... "75"										
CASE J. I. C.			3200 5-p	Coach	1,595	3200 5-p	Speedster	2,195									
3260 3-p	Roadster	\$1,840	3200 5-p	Sedan	1,795	3200 5-p	Speedster De L.	2,485									
3200 5-p	Touring	1,885	3200 5-p	Berline Sedan	1,995	3200 5-p	Speedster	2,295									
3470 5-p	Sp. Touring	2,160	3200 5-p	Brougham	1,595	3200 5-p	Speedster De L.	2,535									
3570 4-p	Sub. Coupe	2,480	3200 5-p	"91"		3170 5-p	Speedster De L.	2,535									
3640 5-p	Sedan	2,590	3200 5-p	Roadster	1,795	3200 5-p	Speedster De L.	2,535									
3650 5-p	Brougham	2,590	3200 5-p	Phaeton	1,895	3200 5-p	Speedster De L.	2,535									
..... "X"			3200 5-p	Brougham	1,895	3200 5-p	Speedster De L.	2,535									
3202 3-p	Roadster	1,840	3200 5-p	Sedan	1,795	3200 5-p	Speedster De L.	2,535									
3050 5-p	Touring	1,695	3200 5-p	Coach	1,595	3200 5-p	Speedster De L.	2,535									
3380 5-p	Sub. Coupe	2,290	3200 5-p	Spec. Touring	985	3200 5-p	Speedster De L.	2,535									
3380 5-p	Victoria	2,290	3200 5-p	Coupe "B"	995	3200 5-p	Speedster De L.	2,535									
3400 5-p	Sedan	2,385	3200 5-p	Spec. Coupe "B"	1,095	3200 5-p	Speedster De L.	2,535									
..... "Y"			3200 5-p	Sedan A	1,245	3200 5-p	Speedster De L.	2,535									
3490 7-p	Touring	2,225	3200 5-p	Spec. "B" Sedan	1,195	3200 5-p	Speedster De L.	2,535									
4320 7-p	Sedan	2,975	3200 5-p	Spec. "A" Sedan	1,320	3200 5-p	Speedster De L.	2,535									
CHANDLER "SS"			3200 5-p	Spec. "B" Coach	1,195	3200 5-p	Speedster De L.	2,535									
3090 2-p	Roadster	\$1,795	3200 5-p	Spec. "B" Sedan	1,195	3200 5-p	Speedster De L.	2,535									
3132 4-p	Roadster	1,785	3200 5-p	Spec. "B" Sedan	1,195	3200 5-p	Speedster De L.	2,535									
3084 5-p	Touring	1,595	3200 5-p	Spec. "B" Sedan	1,195	3200 5-p	Speedster De L.	2,535									
3248 4-p	Royal Dispatch	1,885	3200 5-p	Spec. "B" Sedan	1,195	3200 5-p	Speedster De L.	2,535									
DORRIS "6-80"			3200 5-p	Spec. "A" Sedan	1,320	3200 5-p	Speedster De L.	2,535									
4120 4-p	Pasadena Tour.	\$4,150	3200 5-p	Spec. "A" Sedan	1,320	3200 5-p	Speedster De L.	2,535									
4115 7-p	Touring	4,150	3200 5-p	Spec. "A" Sedan	1,320	3200 5-p	Speedster De L.	2,535									
3200 5-p	Coupe	4,985	3200 5-p	Spec. "A" Sedan	1,320	3200 5-p	Speedster De L.	2,535									
3200 5-p	Sedan	5,550	3200 5-p	Spec. "A" Sedan	1,320												

Prices and Weights of Current Passenger Car Models

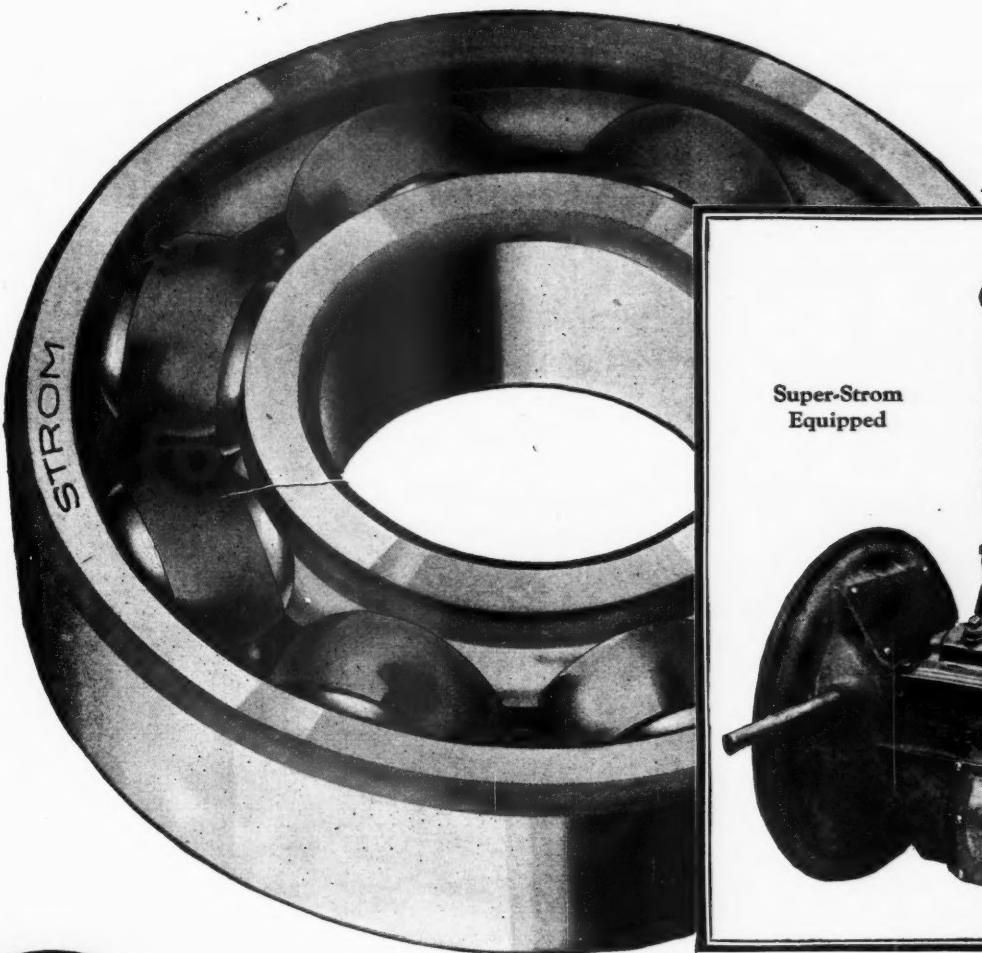
SHIP. WT. PASS.	BODY STYLE.	PRICE	SHIP. WT. PASS.	BODY STYLE.	PRICE	SHIP. WT. PASS.	BODY STYLE.	PRICE	
LINCOLN (Con'd)			NASH (Cont'd)			PIERCE-ARROW (Con'd)			
4555 4-p Phaeton	4,000		"Advanced"	(127 in. W. B.)		3235 7-p Phaeton	2,895	4200 2-p Roadster	\$8,150
— Sport Touring	4,500		3480 7-p Touring	1,525		3365 4-p Coupe Landau	3,820	4400 7-p Touring	7,500
4655 4-p Coupe	4,600		3640 4-p Victoria	2,090		3335 4-p Coupe	3,695	4250 4-p Sp. Touring	7,750
4775 4-p Sedan	4,800		3750 5-p Coupe 4 d.	2,190		3440 5-p Sedan	3,895	4600 4-p Coupe	9,000
4825 5-p Sedan	4,900		3830 7-p Sedan	2,290		3560 7-p Sedan	3,995	4600 4-p Sedan	10,000
4865 7-p Sedan	5,100		OAKLAND "6-54"			3615 7-p Enc. Drive Lim.	4,045	4800 6-p Sedan	9,675
4945 7-p Limousine	5,300		2420 3-p Roadster	\$1,095		REO "T-6"		4800 6-p Town Brougham	10,175
LOCOMOBILE "48"			2510 3-p Sp. Roadster	1,195		3250 3-p Sp. Roadster	\$1,765	4800 6-p Vestibule Limou.	9,675
5280 4-p Sportif Tour.	\$7,460		2485 5-p Touring	1,095		3182 5-p Sp. Touring	1,595	4800 7-p Vestibule Limou.	10,175
5320 7-p Touring	7,460		2550 5-p Sp. Touring	1,195		3235 2-p Coupe	1,645	4800 7-p ½ Limousine	10,175
5630 5-p Victoria Sedan	10,050		2620 5-p Coach	1,215		3450 4-p Coupe	1,975	4800 7-p Cabriolet	10,175
5644 7-p Brougham	10,040		2620 3-p Landau Coupe	1,295		3400 5-p Sedan 4 d.	1,645		
5640 7-p Touring Lim.	9,500		2720 4-p Coupe	1,495		3545 5-p Sedan	2,085		
5868 7-p Enc. Drive Lim.	10,050		2700 5-p Sp. Sedan	1,375		3705 5-p Brougham 4 d.	2,235		
5600 7-p Cabriolet	10,300		2860 5-p Sedan	1,545		REVERE "25"			
— "J-8"			2835 5-p Landau Sedan	1,645		3900 2-p Sp. Roadster	\$2,750	2760 3-p Du. Roadster	\$1,125
— 2-p Roadster	2,150		OLDSMOBILE "30"			3975 4-p Speedster	2,750	2870 5-p Du. Phaeton	1,145
— 5-p Touring	1,785		2145 2-p Roadster	\$890		3975 5-p Touring	2,750	2945 3-p Country Club	1,345
— 5-p Sedan	2,285		2270 2-p Sp. Roadster	985		3800 4-p Sportster	3,200	2980 5-p Coach	1,295
— 5-p Brougham	2,285		2200 5-p Touring	890		3970 5-p Sedan	4,000	3175 5-p Brougham	1,465
McFARLAN "6"			2360 5-p Sp. Touring	1,015		4050 5-p Sedan	3,800	3260 5-p Sedan	1,595
— "SV"			2330 2-p Bus. Coupe	1,045		4300 5-p Sedan	3,800	3280 5-p Berline	1,650
3700 2-p Roadster	\$2,650		2460 4-p Coupe	1,175		"M"			
3700 2-p Spec. Roadster	2,900		2410 5-p Coach	1,075		3235 4-p Sp. Roadster	\$1,595	3400 4-p Du. Roadster	1,495
3600 5-p Touring	2,650		2510 5-p DeLuxe Coach	1,150		2864 4-p Sp. Roadster	\$1,595	3480 4-p Sp. Roadster	1,645
— 7-p Touring	2,750		2570 5-p Sedan	1,285		2787 5-p Sp. Touring	1,395	3475 5-p Du. Phaeton	1,495
— 4-p Coupe	3,180		2740 5-p DeLuxe Sedan	1,375		3040 4-p Coupe	1,895	3605 4-p Club Coupe	1,695
3850 5-p Sedan	3,180		OVERLAND "91" 4 (100 in. W. B.)			3027 5-p Coach Brough.	1,595	3675 4-p Victoria	1,895
3850 5-p Spec. Sedan	3,180		1919 5-p Touring	\$495		3143 5-p Sedan	1,995	3785 5-p Brougham	1,795
3850 7-p Sedan	3,280		2205 5-p Coupe	635		"A"		3885 5-p Sedan	2,045
— 5-p Sub. Sedan	3,380		2205 5-p Sedan De Luxe	715		3326 4-p Sport Phaeton	\$2,195	3890 5-p Berline	2,120
— 7-p Sub. Sedan	3,480		2202 5-p Std. Sedan 2 d.	655		3440 4-p Coupe	2,695		
— 5-p Brougham	3,180		3376 5-p Coupe	2,685		3585 5-p Sedan	2,795		
— "TV"			3376 5-p Sedan	2,685		3485 5-p Coach Brough.	2,395		
4000 2-p Roadster	\$5,400		3374 5-p Sedan Limousine	2,885		ROAMER "6-54-E"			
4600 4-p Sp. Touring	5,600		(112 ½ in. W. B.)			(118 in. W. B.)		3492 2-p Roadster	\$2,395
4900 4-p Coupe	6,720		PACKARD "8"			3100 2-p Roadster	\$2,685	3640 5-p Touring	2,395
5200 4-p Tour. Sedan	6,720		(126 in. W. B.)			3100 4-p Tourer	2,485	3940 4-p Coupe	3,050
5200 7-p Tour. Sedan	6,810		3643 4-p Roadster	\$2,785		3300 4-p Sp. Touring	2,750	3926 5-p Sedan	3,050
— 6-p Sedan	6,720		3653 5-p Touring	2,585		— 7-p Touring	2,685		
— 7-p Sedan	6,810		3595 4-p Sp. Touring	2,750		— 8-p Cabriolet	3,285		
— 7-p Spec. Sedan	6,810		3753 4-p Coupe	2,585		(138 in. W. B.)		4064 5-p Sportster	3,085
— 7-p Enc. Sedan	7,110		3876 5-p Coupe	2,685		4100 5-p Spec. Sedan	\$4,250	4152 7-p Tourster	3,070
5200 7-p Town Car	9,000		3876 5-p Sedan	2,585		4200 7-p Suburban Sedan	3,950	4305 5-p Sportbrhm	3,785
MARMON "74"			3974 5-p Sedan Limousine	2,885		"4-75-E"		4622 7-p Suburban	3,935
3695 2-p Roadster	\$3,165		(133 in. W. B.)			4675 7-p Berline	4,085		
3604 5-p Phaeton	3,165		3793 7-p Touring	2,785		3600 4-p Sport	\$3,650	3030 4-p Sp. Roadster	\$1,650
3704 7-p Touring	3,165		4043 7-p Sedan	2,785		3200 2-p Spec. Speedster	3,785	2840 5-p Touring	1,275
3604 5-p Club Phaeton	3,465		4143 7-p Sedan Limousine	2,885		ROLLIN "6-95"		3025 5-p Club Phaeton	1,425
3704 7-p Club Touring	3,465		"g"			2360 5-p Touring	\$1,155	3150 4-p Coupe	1,325
3799 5-p Brougham Coupe	3,295		(136 in. W. B.)			2405 3-p Coupe	1,325	3340 5-p Royal Sedan	1,925
3729 3-p Coupe De Luxe	3,455		4060 4-p Runabout	2,950		2595 5-p Brougham	1,325	3083 5-p Coach 2d.	1,425
3869 5-p Sedan	3,295		4090 5-p Touring	3,750		2575 5-p Sedan	1,455	3005 5-p Coach 4d.	1,450
3859 5-p Sedan de Luxe	3,775		4023 4-p Sp. Touring	3,900		ROLLS-ROYCE Chassis	↑↑	WESTCOTT "44"	
3999 7-p Sedan	3,370		4242 4-p Coupe	4,650		↑↑ Manufacturer's do not quote list prices.		3150 5-p Spec. Touring	\$1,970
3974 7-p Sedan de Luxe	3,850		4327 5-p Coupe	4,825		3300 4-p Sedan		3300 4-p Brougham 3d.	2,320
3969 5-p Sedan Limousine	3,900		4528 5-p Sedan	4,750		STAR "B-68"			
3999 7-p Sedan Limousine	3,975		4535 5-p Sedan Limousine	4,850		(127 in. W. B.)		3300 5-p Sedan	\$2,325
MAXWELL "25"			4199 7-p Touring	3,950		STANLEY "252"			
2130 2-p Roadster	\$885		4655 7-p Sedan	5,000		3400 5-p Phaeton	\$2,500	3030 4-p Sp. Roadster	\$1,650
2210 5-p Touring	895		4710 7-p Sedan Limousine	5,100		3800 5-p Sedan	3,300	3205 5-p Touring	1,275
2255 2-p Club Coupe	995		PAIGE "21-24"			3265 4-p Coupe	1,325	3225 5-p Club Phaeton	1,425
2440 5-p Club Sedan	1,045		3875 4-p Phaeton	\$2,165		3335 5-p Brougham	1,325	3150 4-p Coupe	1,325
2580 5-p Std. Sedan	1,095		3935 7-p Phaeton	2,165		3500 7-p Sedan	1,715	3340 5-p Royal Sedan	1,925
2595 5-p Spec. Sedan	1,245		3975 5-p Brougham	2,195		2090 5-p Sedan 2 d.	750	3083 5-p Coach 2d.	1,425
MERCER "6"			4050 5-p Broug. De Luxe	2,395		2155 5-p Sedan 4 d.	820	3005 5-p Coach 4d.	1,450
3860 2-p Runabout	\$4,500		4325 7-p Sedan 2 d.	2,840		STEARNS-KNIGHT "B" (4)			
3950 6-p Touring	4,500		4325 7-p Sub. Limousine	2,965		3775 4-p Coupe Roadster	\$1,795	3265 4-p Roadster	\$3,185
3900 4-p Sporting	4,500		3175 5-p Touring	1,895		4250 5-p Sedan	2,095	3335 5-p Sedan	4,085
4070 4-p Coupe	6,250		3525 5-p Coupe	2,495		— 5-p Brougham	2,095	3635 7-p Sedan	4,100
4240 5-p Sport Sedan	6,250		3550 5-p Sedan	2,565		3265 5-p Sedan	2,495	3570 5-p Brougham 4d.	3,900
4350 4-p Tour. Limousine	6,500		(133 in. W. B.)			3710 7-p Limousine	4,085	3710 7-p Town Car	5,500
4300 4-p Brougham	6,500		3950 4-p Phaeton	2,945		— 7-p Sedan	3,900		
MOON Series "A"			3995 7-p Phaeton	2,990		3265 4-p Coupe	2,395	3570 5-p Limousine	4,285
2440 5-p Roadster	1,395		3825 7-p Phaeton	2,990		3850 7-p Touring	2,495	3710 7-p Sedan	3,900
2625 3-p Cab. Roadster	1,695		"8-67"			3775 5-p Coupe	2,395	3635 7-p Sedan	3,900
2460 5-p Touring	1,295		4300 5-p Town Brougham	3,895		3850 7-p Sedan	2,095	3570 5-p Sedan	3,185
2605 5-p Del. Sedan 2d.	1,695		4310 5-p Town Sedan	3,895		3775 5-p Sedan	2,395	3630 5-p Sedan	3,185
2755 5-p Delux. Sedan 4d.	1,785		4400 7-p Sub. Sedan	3,995		3850 7-p Sedan	2,395	3630 5-p Sedan	3,285
— 5-p Sedan 4d.	1,595		4525 7-p Berline Lim.	4,195		3775 7-p Sedan	2,395	3630 5-p Sedan	3,385
2760 5-p Newport			4525 7-p Victoria Coupe	3,845		3850 7-p Sedan	2,395	3630 5-p Sedan	3,485
2920 5-p Sedan	1,815		4100 4-p Sub. Coupe	3,845		3775 7-p Sedan	2,395	3630 5-p Sedan	3,585
3090 5-p Petite Sedan	1,915		4255 7-p Sedan	6,900		3850 7-p Sedan	2,395	3630 5-p Sedan	3,685
Metropolitan			4960 7-p Sedan	7,000		3775 7-p Sedan	2,395	3630 5-p Sedan	3,785
2860 5-p Touring	1,515		PIERCE-ARROW "33"			3850 7-p Sedan	2,395	3630 5-p Sedan	3,885
3020 5-p Sedan	1,995		4350 2-p Runabout	\$5,250		3775 7-p Sedan	2,395	3630 5-p Sedan	3,985
3190 5-p Sp. Sedan	2,095		4500 4-p Touring	5,250		3850 7-p Sedan	2,395	3630 5-p Sedan	4,085
— London			3700 5-p Sedan	2,765		3775 7-p Sedan	2,395	3630 5-p Sedan	4,100
3270 5-p Sp. Touring	1,985		3700 5-p Brougham	2,285		3850 7-p Sedan	2,395	3630 5-p Sedan	4,100
3590 5-p Petite Sedan	2,540		4230 3-p Coupe	6,800		3775 7-p Sedan	2,395	3630 5-p Sedan	4,100
NASH "Special"			4800 4-p Sedan	6,900		3850 7-p Sedan	2,395	3630 5-p Sedan	4,100
2870 2-p Roadster	\$1,095		4960 7-p Sedan	7,000		3775 7-p Sedan	2,395	3630 5-p Sedan	4,100
2960 5-p Touring	1,095		4750 4-p Coupe Sedan	6,900		3850 7-p Sedan	2,395	3630 5-p Sedan	4,100
3120 5-p Sedan	1,225		4730 6-p Brougham	6,800		3775 7-p Sedan	2,395	3630 5-p Sedan	4,100
3270 5-p Sedan 4 d.	1,545		4850 7-p Limousine	7,000		3850 7-p Sedan	2,395	3630 5-p Sedan	4,100
— "Advanced"			5060 7-p Enclosed Lim.	7,000					

Mechanical Specifications of Current Passenger Car Models

This list comprises cars distributed on a national basis

REVIEWS

- At extra cost
 - Balloons at extra cost
 - $\frac{1}{2}$ -Semi-Roating
 - $\frac{3}{4}$ -Three-quarter floating
 - Air
 - A-Aluminum
 - B-Semi-steel
 - F-Both internal and external, four wheels
 - C-Centrifugal
 - G-Gear

Super-Strom
EquippedSingle-acting thrust
bearing, flat seats
(grooved races)
1100-F SeriesDouble-acting thrust
bearing, flat seats
(grooved races)
2100-F Series

Single-acting, self-aligning thrust bearing, leveling washer, 1100-U Series

Double-acting, self-aligning thrust bearing, leveling washers
2100-U Series

Super-Strom Ball Bearings

*—for smoother action, quietness of operation,
and longer life of transmissions*

AUTOMOTIVE engineers are specifying Super-Strom Ball Bearings for transmissions, recognizing their greater smoothness of action and quietness of operation as well as greater dependability.

The new Super-Strom radial bearing insures correct relation of parts by holding the shaft in permanently rigid alignment. Its accuracy and freedom from wear greatly prolong the life of the transmission with consequent reduction in upkeep costs.

Deep-grooved and without filling slots, the Super-Strom offers increased load-carrying capacity by the use of larger balls. It is a stock bearing, yet

its dimensional accuracy and concentricity compare favorably with bearings made to special specifications. Retainers are unusually sturdy—accurately pressed—rigidly riveted. The special analysis steel used is hardened throughout, not merely case-hardened, thus giving exceptional durability.

Super-Strom Ball Bearings are now available in quantity production—in a wide variety of types and sizes. Behind them is the Strom reputation for quality manufacture. Our engineers welcome inquiries. Let us send you catalogs, price lists, with tables of load capacities at different r.p.m., etc. Write for the facts.

Strom

BALL BEARINGS

STROM BALL BEARING MFG. CO.

4551 Palmer Street, Chicago, Ill.

Super-Strom
deep groove,
radial bearing

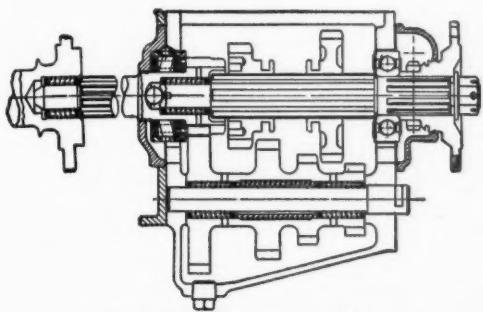
Double-row, deep-groove, radial bearing, bronze retainer

Angular contact
bearing, combination
radial and thrustSingle-row, maxi-mum type,
radial bearing

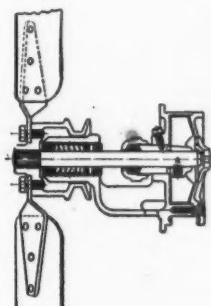
Mechanical Specifications of Current Passenger Car Models—Continued

This list comprises cars distributed on a national basis

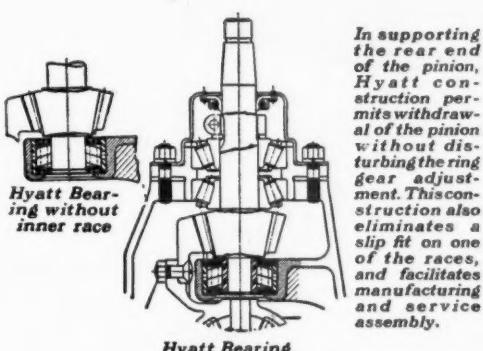
MAKE AND MODEL	WHEEL BASE (inches)	DEMI-TRAILERS NUMBER OF CARS	MODEL AND STROKE	ENGINE	ELECTRICAL SYSTEM		GEAR SET—TYPE AND MAKE	DRIVERSLES—TYPE AND MAKE	REAR AXLE	BRAKES	GEAR RATIO	FOOT TYPE AND LOCATION	WHEEL TYPE AND LOCATION	SPINDLES—TYPE AND MAKE	GEAR SPINDLES—TYPE AND MAKE	CHASSIS LUBRICATION	TYPE AND MAKE	PRICES
					STRAIGHT—TYPE AND MAKE	CENTERED—TYPE AND MAKE												
Locomobile.....Jr. 8	124	30x5.70	Own....8 82x3x4	25.3	325 T	Own....48 6-41/2x51/2	48.6	325 T	He....1.1	Int. C.I.	5	4.77 E-F-E-R M	Ross S	Pr-Ze	A-K—Atwater Kent	4.50		
Locomobile.....8	142	35x6.75	Own....48 6-41/2x51/2	48.6	325 T	Own....48 6-3x451/2	48.6	325 T	He....1.1	Int. C.I.	5	4.77 E-F-E-R M	Ross S	Pr-Ze	A-L—Auto-Lite	4.50		
Marmon.....74	136	32x6.20	Own....48 6-3x451/2	48.6	325 T	Own....25 4-3/8x341/2	48.6	325 T	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Ross S	Pr-Ze	Ad—Adams	4.45		
Marmon.....25	109	32x6.25	Own....48 6-3x451/2	48.6	325 T	Own....25 4-3/8x341/2	48.6	325 T	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Ross S	Pr-Ze	Al—Almete	4.50		
McFarlan.....SV	127	32x6.20	Wls....14 6-3x451/2	48.6	325 T	Own....12 6-3x451/2	48.6	325 T	He....1.1	Int. C.I.	5	4.77 E-F-E-T H	Ross S	Pr-Ze	An—Ansied	4.50		
McFarlan.....TV	140	34x7.20	Wls....14 6-3x451/2	48.6	325 T	Own....12 6-3x451/2	48.6	325 T	He....1.1	Int. C.I.	5	4.77 E-F-E-T H	Ross S	Pr-Ze	B-L—Brown-Lipe	4.50		
Mercer.....6	115-132	32x6.25	Own....14 6-3x451/2	48.6	325 T	Own....14 6-3x451/2	48.6	325 T	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Ross S	Pr-Ze	Bal—Ball & Ball	4.50		
Mercer.....Newport	115	31x5.25	Own....14 6-3x451/2	48.6	325 T	Own....14 6-3x451/2	48.6	325 T	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Ross S	Pr-Ze	Bas—Basic cups	4.50		
Moon.....Metropolitan	118	31x5.25	Own....14 6-3x451/2	48.6	325 T	Own....14 6-3x451/2	48.6	325 T	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Ross S	Pr-Ze	Bus—Bus	4.50		
Moon.....London	128	32x6.20	Own....14 6-3x451/2	48.6	325 T	Own....14 6-3x451/2	48.6	325 T	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Ross S	Pr-Ze	Car—Bowen Products	4.50		
Moon.....Series A	113	32x6.25	Own....14 6-3x451/2	48.6	325 T	Own....14 6-3x451/2	48.6	325 T	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Ross S	Pr-Ze	Car—Carter	4.50		
Nash.....Advanced	121-127	33x6.00	Own....16 1/2-6-3x451/2	52.4	249 I	Own....16 1/2-6-3x451/2	52.4	249 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	CAS—CAS Products	4.50		
Nash.....Special	112 1/2	31x5.20	Own....13 1/2-6-3x451/2	52.4	207 I	Own....13 1/2-6-3x451/2	52.4	207 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Cle—Cleveland	4.50		
Oakland.....6-54	113	31x4.95	Own....6-54 6-22x431/2	19.8	185 I	Own....6-54 6-22x431/2	19.8	185 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Jac. S	Pr-Ze	Cl—Climax	4.50		
Oakland.....30	110 1/2	31x4.95	Own....6-54 6-22x431/2	19.8	169 I	Own....6-54 6-22x431/2	19.8	169 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Jac. S	Pr-Ze	Con—Continental	4.50		
Overland.....91	100	30x3 1/2	Own....91 4-3/8x541/2	19.6	154 I	Own....91 4-3/8x541/2	19.6	154 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Jac. S	Pr-Ze	Conn—Connecticut	4.50		
Overland.....93	112 1/2	30x4 1/2	Own....93 4-3/8x541/2	19.6	185 I	Own....93 4-3/8x541/2	19.6	185 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Jac. S	Pr-Ze	Cu—Columbia	4.50		
Packard.....6	1126	33x5.77	Own....6-3x451/2	52.4	289 I	Own....6-3x451/2	52.4	289 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Jac. S	Pr-Ze	Cm—Cm Bij	4.50		
Pierce Arrow.....80	130	33x6.75	Own....8 83x6/5	36.5	258 L	Own....16 1/2-6-3x451/2	52.4	249 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	De—Delon	4.50		
Pierce Arrow.....131	21-25	33x6.75	Own....10 4-3/8x45	33.8	331 L	Own....10 4-3/8x45	33.8	331 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Det—Detroit	4.50		
Pearl.....6-72	126-133	32x6.00	Own....72 6-3x451/2	29.4	280 L	Own....72 6-3x451/2	29.4	280 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Di—Ditweller	4.50		
Pearl.....67	125	33x6.75	Own....67 8-3x451/2	33.8	322 I	Own....67 8-3x451/2	33.8	322 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Do—Dusenberg	4.50		
Pierce Arrow.....35	138	33x5.75	Own....33 6-4 1/2	38.4	415 I	Own....33 6-4 1/2	38.4	415 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Dyn—Dyneto	4.50		
Pierce Arrow.....30	120	32x6.20	Own....30 6-3x451/2	29.4	286 L	Own....30 6-3x451/2	29.4	286 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Eat—Eaton	4.50		
Pierce Arrow.....16	120	32x6.20	Own....16 6-3x451/2	29.4	286 L	Own....16 6-3x451/2	29.4	286 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Fli—Flint	4.50		
Revere.....M	131	32x4 1/2	Mon....4 4-3/8x46	30.6	326 L	Ch. ....573 T	30.6	326 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Ful—Full	4.50		
Revere.....25	131	32x6.20	Con....6 1/2-6-3x451/2	33.8	331 L	Ch. ....573 T	33.8	331 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Gammer—Gammer	4.50		
Rickenbacker.....D	117	31x5.25	Own....12 6-3/8x431/2	25.4	236 I	Own....12 6-3/8x431/2	25.4	236 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Hoo—Hoover	4.50		
Rickenbacker.....A	121 1/2	32x5.75	Own....12 6-3/8x431/2	25.4	236 I	Own....12 6-3/8x431/2	25.4	236 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Jac—Jacox	4.50		
Roamer.....6-54 E	118-138	32x5.75	Own....12 X 6-3/8x431/2	25.4	303 L	Own....12 X 6-3/8x431/2	25.4	303 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Joh—Johnson	4.50		
Roamer.....A	128	32x5.75	Own....12 X 6-3/8x431/2	25.4	303 L	Own....12 X 6-3/8x431/2	25.4	303 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Kin—Kingston	4.50		
Roll Royce.....Silver Ghost	143 1/2	32x5.75	Own....12 X 6-3/8x431/2	25.4	303 L	Own....12 X 6-3/8x431/2	25.4	303 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Lee—Leese-Neville	4.50		
Roll Royce.....Phantom	144-150 1/2	33x5 1/2	Own....12 X 6-3/8x431/2	25.4	463 I	Own....12 X 6-3/8x431/2	25.4	463 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Lav—Lavine	4.50		
Stanley.....252	122	31x4.90	Own....252 x 5	20.0	280 I	Own....252 x 5	20.0	280 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Lye—Lyonning	4.50		
Sar.....4	102	30x3 1/2	Con....She 4-3/8x541/2	18.2	229 X	Con....She 4-3/8x541/2	18.2	229 X	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Mer—Merchant & Evans	4.50		
Searns Knight.....B	119	33x5 1/2	Own....Kui 4-3/8x541/2	22.5	289 I	Own....Kui 4-3/8x541/2	22.5	289 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Mec—Mechanics Machines	4.50		
Searns Knight.....C	121	32x5 1/2	Own....Kui 4-3/8x541/2	22.5	289 I	Own....Kui 4-3/8x541/2	22.5	289 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Reo—Reo	4.50		
Searns Knight.....S	130	33x5 1/2	Own....Kui 4-3/8x541/2	22.5	289 I	Own....Kui 4-3/8x541/2	22.5	289 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	San—Monson	4.50		
Sterling Knight.....125	125	32x5 1/2	Own....B6 6-4 1/2x431/2	25.4	230 I	Own....B6 6-4 1/2x431/2	25.4	230 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Mun—Muncie	4.50		
Stevens Duryea.....G	138	33x5 1/2	Own....B6 6-4 1/2x431/2	25.4	310 L	Own....B6 6-4 1/2x431/2	25.4	310 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	North East	4.50		
Studebaker.....Sis. 6	113	31x5.25	Own....ER 6-3/8x431/2	27.3	242 L	Own....ER 6-3/8x431/2	27.3	242 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	North West	4.50		
Studebaker.....Spec. 6	120	32x6.20	Own....EQ 6-3/8x45	20.4	289 L	Own....EQ 6-3/8x45	20.4	289 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Pet—Peter	4.50		
Studebaker.....Big 6	127	34x7.30	Own....EP 6-37x45	36.0	333 L	Own....EP 6-37x45	36.0	333 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Ray—Rayfield	4.50		
Stutz.....6-94	120	32x6.20	Own....691 6-31x25	29.4	289 I	Own....691 6-31x25	29.4	289 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Rockford—Rockford	4.50		
Stutz.....6-95	118	31x5.25	Own....691 6-31x25	29.4	289 I	Own....691 6-31x25	29.4	289 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Sa—Saal	4.50		
Vale.....44	120	32x6.20	Con....8R 6-3/8x431/2	27.3	242 L	Con....8R 6-3/8x431/2	27.3	242 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Sch—Schubler	4.50		
Westcott.....60	118	32x6.20	Own....8R 6-3/8x431/2	27.3	242 L	Own....8R 6-3/8x431/2	27.3	242 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Se—Scooe	4.50		
Will's Ste. Claire.....W6	127	33x6.00	Own....W6 6-3x451/2	25.4	274 I	Own....W6 6-3x451/2	25.4	274 I	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Sh—Shed	4.50		
Will's Ste. Claire.....B&C	127	32x6.20	Own....B&C 6-3x451/2	25.4	310 L	Own....B&C 6-3x451/2	25.4	310 L	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Sp—Spicer	4.50		
Willys Knight.....65	118	30x5.77	Own....65 4-3/8x431/2	21.0	186 X	Own....65 4-3/8x431/2	21.0	186 X	He....1.1	Int. C.I.	5	4.77 E-F-E-T M	Gem. S	Pr-Ze	Sp—Splitdorf	4.50		
Willys Knight.....66	126	32x6.20	Own....66 6-3/															



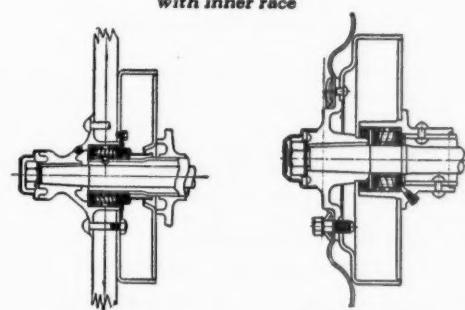
The fully Hyatt-equipped Transmission assures a quality unit at low cost—quiet, dependable and long-lived.



The Hyatt-equipped Fan and Pump Shaft Assembly means lower costs, neater appearance, freedom from lubrication troubles, and a quiet unit in the hands of the user.



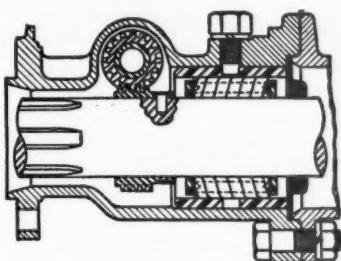
In supporting the rear end of the pinion, Hyatt construction permits withdrawal of the pinion without disturbing the ring gear adjustment. This construction also eliminates a slip fit on one of the races, and facilitates manufacturing and service assembly.



3/4 Floating

Semi-Floating

Hyatt bearings are well suited for passenger car hubs for they absorb shock and vibration without injury or wear. This means quiet, trouble proof axles, assuring maximum service with little attention.



A Hyatt bearing on the Propeller Shaft takes the shaft whip, withstands severe service, and requires practically no attention from the user even for greasing.

The Wide Range Application of Hyatt Roller Bearings

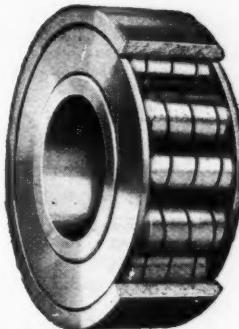
WHEREVER anti-friction bearings can be used to carry radial loads, Hyatt Roller Bearings effectively meet the requirements. The adaptability of these bearings, due to their ability to operate with or without races, permits of extremely simple design.

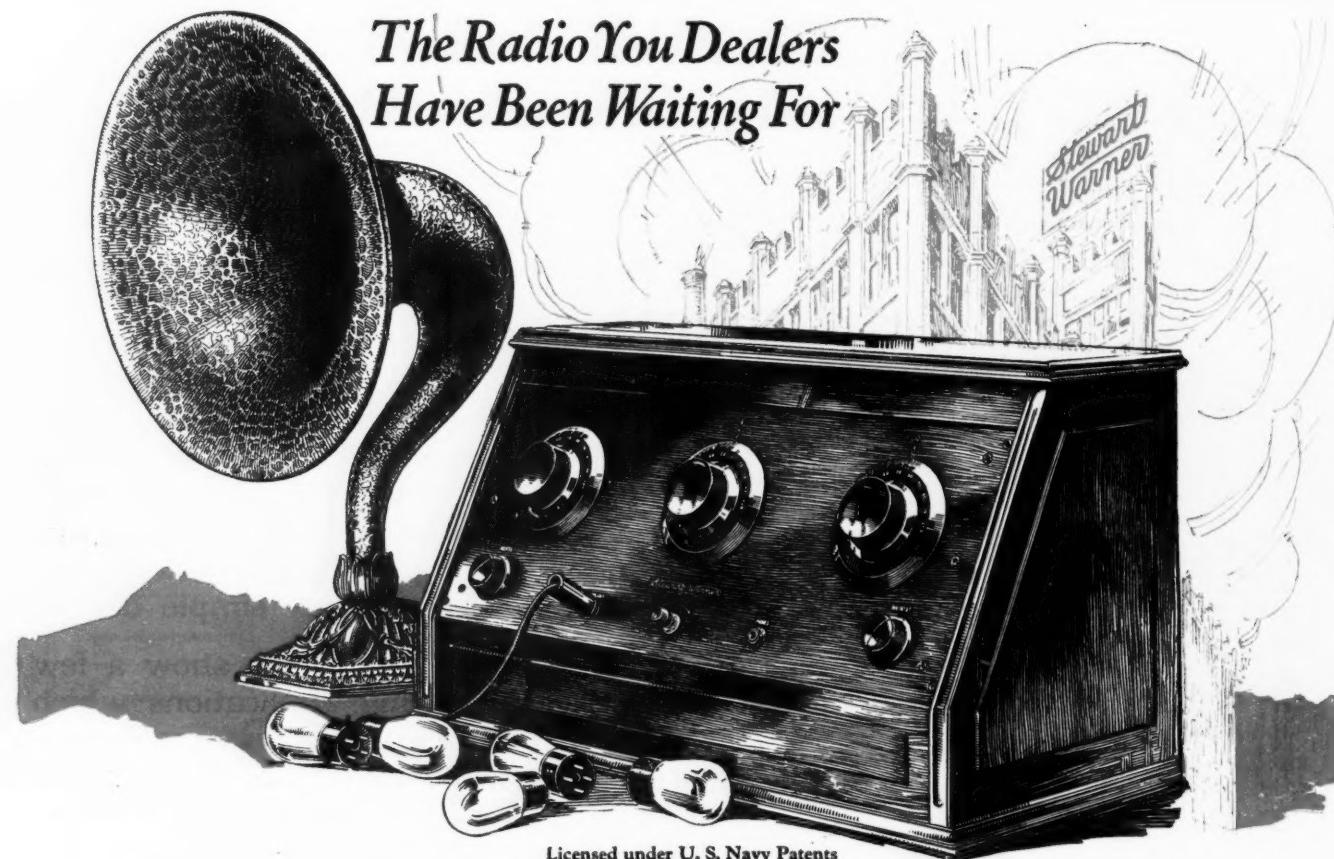
The accompanying illustrations show a few of the principal bearing applications which the Hyatt Roller Bearing Company, co-operating with manufacturers, has assisted in developing. There are many other applications (not illustrated here) that also show the peculiar adaptability of Hyatt bearings, and how, through their use, manufacturing economies are effected.

Full information and data covering any or all of these designs will be gladly furnished, or, if you prefer, a Hyatt Sales Engineer will call.

HYATT ROLLER BEARING COMPANY
 NEWARK DETROIT CHICAGO SAN FRANCISCO
 WORCESTER PITTSBURGH PHILADELPHIA CLEVELAND
 CHARLOTTE MILWAUKEE

HYATT
Quiet
Roller Bearings





Licensed under U. S. Navy Patents

Stewart-Warner Radio

THE FIRST COMPLETE RADIO ENSEMBLE

Just what you have been waiting for—Just what you would expect Stewart-Warner to produce—A complete group of perfectly matched radio units that gives unheard-of performance!

STEWART-WARNER Radio—the ensemble radio—is now ready!

The good news has been hard to keep! Extreme secrecy has guarded every move and discovery of Stewart-Warner engineers, who have for more than two years been engaged in the solution of a tremendous problem—the perfection of radio! Yet for months the radio world has been tremble with the rumor that "something revolutionary in radio is about to be announced."

So the announcement of Stewart-Warner Radio is not a surprise because everybody has been expecting it. You know you, yourself, have been waiting for a concern like Stewart-Warner to take the uncertainties, disappointments and troubles out of radio and give you only real results.

Stewart-Warner Radio has done this for you, and we offer as

Stewart-Warner Radio Instruments; Models and Prices to fit every need. Stewart-Warner Reproducer, \$25.00. Stewart-Warner Radio Tubes, each, \$3.00. Batteries, Aerial and Ground Equipment for this ensemble can be secured from authorized Stewart-Warner Radio Dealers.

our contribution to radio progress the complete group of perfectly matched Stewart-Warner Radio units.

The term "Stewart-Warner Radio" signifies this complete group, or ensemble, which includes:

1. The complete line of Stewart-Warner Instruments in which is incorporated, for the first time, the great, five-tube U. S. Navy circuit;
2. The Stewart-Warner Reproducer which we have built to give perfect harmony with Stewart-Warner Instruments;
3. Stewart-Warner Radio Tubes, which are so skillfully designed that they perform with ease the most difficult of all tube functions—that of radio frequency amplification;
4. Batteries, aerial and ground equipment complete the ensemble.

Exclusive Stewart-Warner Wholesale Radio Distributors

ARIZONA
Phoenix, 245-47 W. Adams St.

CALIFORNIA
Fresno, 1412 Broadway
Los Angeles, 1366 S. Figueroa St.
Oakland, 326 23rd St.
Sacramento, 1516 J St.
San Diego, 811 Front at F St.
San Francisco, 1450 Van Ness Ave.

COLORADO
Denver, 1153 Bannock St.

CONNECTICUT
Hartford, 45-47 Wells St.

DIST. OF COLUMBIA
Washington, 1117 14th St., N.W.

FLORIDA
Jacksonville, 907 Main St.

GEORGIA
Atlanta, 399 Peachtree St.

ILLINOIS
Chicago, 1826-52 Diversey Pkwy.
[Executive Offices]

Chicago, 1312 Michigan Ave.
[Branch Office]
5617 Broadway
[Branch Office]

INDIANA
Indianapolis, 510 Capitol St.

IOWA
Des Moines, 1600-1602 Locust St.

KENTUCKY
Louisville, 935 S. Third St.

LOUISIANA
New Orleans, 1322 St. Charles Ave.

MARYLAND
Baltimore, 1117 Cathedral St.

MASSACHUSETTS
Boston, 1111 Commonwealth Ave.
Springfield, 761 Main St.

MICHIGAN
Detroit, 7321 Woodward Ave.
[Branch Office]

Grand Rapids, 710-712 Monroe Ave.

MINNESOTA
Minneapolis, 116-18 Second Ave., S.
St. Paul, 231 W. Sixth St.

MISSOURI
Kansas City, 1827 Grand Ave.

St. Louis, 3206 Locust St.

NEBRASKA
Omaha, 2043-45 Farnam St.

NEW JERSEY
Newark, 332-336 Plane St.
West Hoboken-Jersey City, 3778 Hudson Blvd.

NEW YORK
Albany, 338 Central Ave.

Brooklyn, 1060 Bedford Ave.

BUFFALO, 1224 Main St.
NEW YORK, 37-43 W. 65th St.

[Branch Office]
Grand Rapids, 710-712 Monroe Ave.

ROCHESTER, 3 Charlotte St.
Syracuse, 516 E. Genesee St.

UTICA, 257 Elizabeth St.

OHIO
Cincinnati, 224 E. Seventh St.
Cleveland, 2309 Chester Ave.

Columbus, 300 E. Long St.

Toledo, 609-611 Huron St.

OREGON
Portland, 495 Burnside at Four-

teenth St.

PENNSYLVANIA
Harrisburg, 1133 Mulberry St.

Philadelphia, 1419 N. Broad St.

Pittsburgh, Baum Blvd. and

Millvale Ave.

Scranton, 123 Franklin Ave.

RHODE ISLAND
Providence, 110 Broadway

TENNESSEE
Memphis, 241 Monroe Ave.

TEXAS
Dallas, 2122-24 Jackson St.
El Paso, 709 Texas St.
Houston, 1711 Main St.
San Antonio, N. Alamo at Fifth St.

UTAH
Salt Lake City, 69 W. 4th South St.

VIRGINIA
Richmond, 1615 W. Broad St.

WISCONSIN
Milwaukee, 582-584 Jefferson St.

WASHINGTON
Seattle, 1515 Broadway
Spokane, First and Jefferson Sts.
Tacoma, 735-737 Broadway

Why Stewart-Warner Radio Dealers Cannot Fail to be Successful!

**The Stewart-Warner Radio Dealer's Franchise Offers
100 per cent Sales Protection to Dealers Who Can
Qualify—Apply by Coupon Below**

STEWART-WARNER is in the radio business to stay, and to give service. We are building a nation-wide organization of exclusive Stewart-Warner Radio Dealers. We are furnishing our dealers with a complete line of the finest radio equipment that it is possible to produce—everything that their customers will require. We are providing absolute sales protection and fair trade practices for all Stewart-Warner Radio Dealers by a sound, sensible distribution policy, never before offered. We are, through our representatives in the field, personally assisting every dealer in his business, insuring him of success.

Stewart-Warner is distributing its Radio Products to dealers through its own, long established organization of Exclusive Stewart-Warner Wholesale Distributors. For years Stewart-Warner has zoned the country into 55 distributing territories, with fixed boundaries, based on buying centers, freight rates, transportation routes, wholesaling habits and newspaper influence. One of these exclusive Stewart-Warner Wholesale Radio Distributors is established in each territory with an exclusive franchise.

These Distributors positively will not wholesale Stewart-Warner Radio Products to any one except dealers holding Stewart-Warner Radio Franchises. Stewart-Warner stands alone in offering, and in its ability to give dealers this 100 per cent sales protection against sales by distributors straight to consumers. Our Radio Dealers will be given the same opportunity to conduct a successful business as are Stewart-Warner Accessory Dealers. We pledge it—and our word is backed

by years of sound business dealings with thousands of successful dealers.

Furthermore, every Stewart-Warner Wholesale Radio Distributor maintains a corps of factory-trained radio experts—both sales and technical—whose explicit duties are to make a 100 per cent success of every Stewart-Warner Radio Dealer. Our Radio Dealer Franchise carries with it this expert aid—this service that insures a profitable business for every retailer of Stewart-Warner Radio.

The Stewart-Warner Radio Dealer Franchise is a valuable contract for which every dealer should strive. There are certain qualification requirements. We want dealers who will make a real business of radio. We want only men of foresight who can look ahead and see the radio industry after the weeding-out process is over.

Fill out the application blank below and mail it to us. Our representative will call with some information very interesting to you.



Stewart-Warner
SPEEDOMETER CORPORATION
CHICAGO, U. S. A.

© 1925, Stewart-Warner Speed. Cor'n

Application for Stewart-Warner Radio Dealer Franchise
(CONFIDENTIAL)

As an aid to us in considering your qualifications and in giving us a record, will you please answer the following questions?

What is your present business? _____

How long have you been in this business? _____

Do you now handle radio? Yes No

If so, what kinds? _____

How many sets did you sell in the last 12 months? _____

What was the amount of this annual business? \$ _____

What was your total business in all lines for the last 12 months? _____ \$ _____

State any other qualifications on a separate sheet and attach.

Radio Division
Stewart-Warner Speedometer
Corporation
1828 Diversey Pkwy., Chicago, Ill.



If you only
want a copy of
Booklet just check here

Gentlemen:—I want to be considered in connection with a Stewart-Warner Radio Dealership and to discuss the details with your representative.

Date _____

Name _____

Address _____

City _____ State _____

FACTS ABOUT A FAMOUS FAMILY



Like sterling on silver

Because of its beauty, comfort and utility, the closed car is becoming standard for year round service.

Among the members of the General Motors family is the Fisher Body Corporation, which in the past six years has equipped more than 1,500,000 passenger

automobiles with closed bodies.

The emblem "Body by Fisher" has come to have a meaning like that of "sterling" on silver.

It is an assurance of quality in the closed bodies of General Motors cars and of many other makes of trustworthy cars as well.

GENERAL MOTORS

BUICK · CADILLAC · CHEVROLET · OAKLAND · OLDSMOBILE · GMC TRUCKS

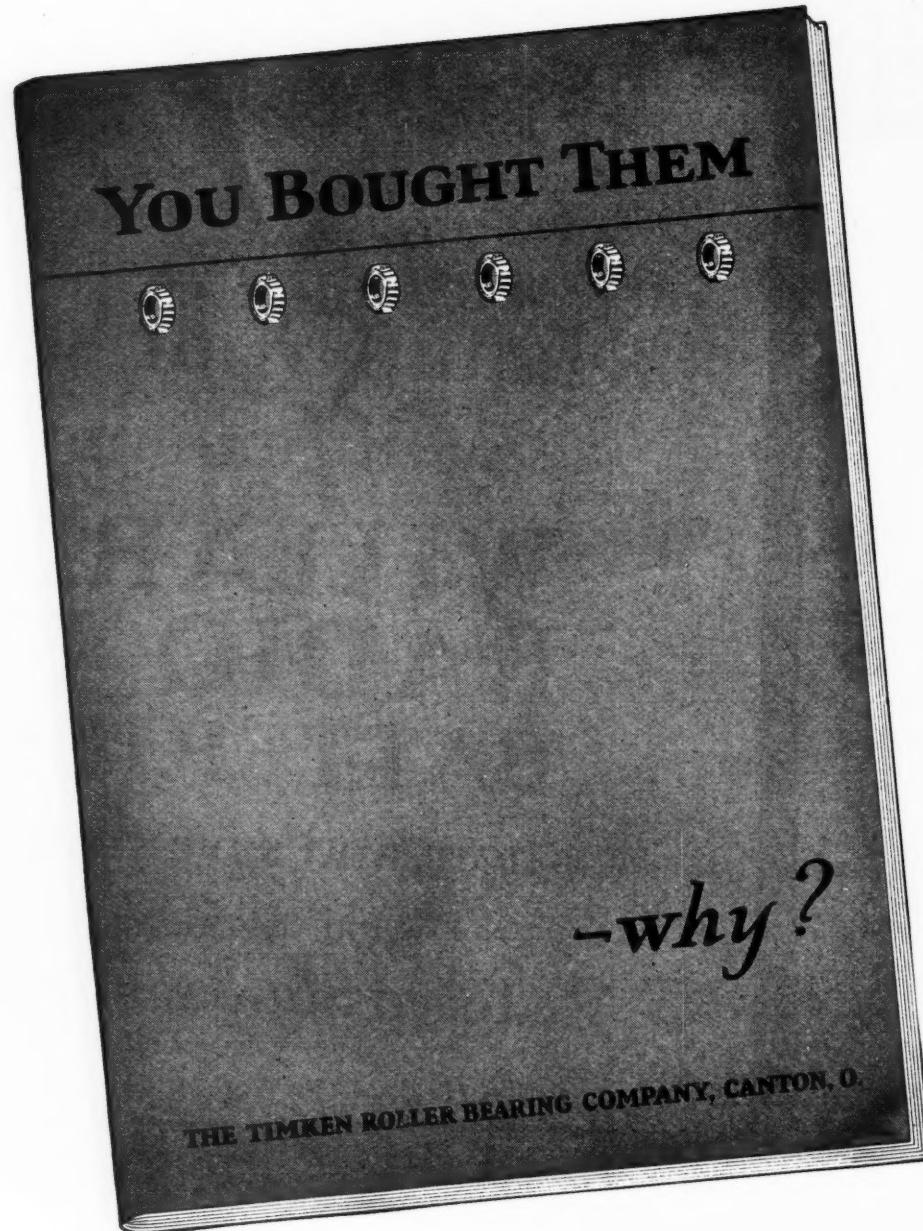
General Motors cars, trucks and Delco-Light products may be purchased on the GMAC Payment Plan.
Insurance service is furnished by General Exchange Corporation.



Equip your set
with genuine
**WILLARD
RADIO "B"
BATTERIES**
now and save from
40% to 50%
Reduced Summer Prices

The Willard
Battery men

Are Bearings



TIMKEN *Tapered
Roller*

So Mysterious?

Timken acceptance enables you to say "Timken-equipped" and avoid technical discussions.

But with 83% of all makes of motor vehicles Timken-equipped; with Timken Bearing production now totaling 125,000,000; with Timken output growing at an even faster rate than automotive output, intense interest focuses on Timkens—if only because of their huge success!

To tell the more intimate story of Timken Bearings and Timken-equipped cars, Timken advertising has been supplemented with the new Timken book, "*You Bought Them—Why?*"

It makes Timken Bearings as plain as Timken success. It does that rare thing—*educational selling*. Every man in the organization and every prospect should have a copy. Write for a supply.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO



BEARINGS



The Biggest Selling Air Compressor in America!

That's why we can sell the Standard De Luxe for \$245 and give the biggest value ever built into an Air Compressor. Our production on this unit has grown so large that we have effected real economies in plant operation and motor base that prevents belt trouble and an air pressure release that protects the motor. Write for catalog No. 26.

We make a complete line of Air Compressor outfits priced from \$150 up.

If interested in Spray Painting equipments send for catalog PS-10. Equipments from $\frac{3}{4}$ h.p. to 5 h.p. completely equipped with spray gun and accessories.

**The United States Air
Compressor Company**
5304 Harvard Ave., Cleveland, O.

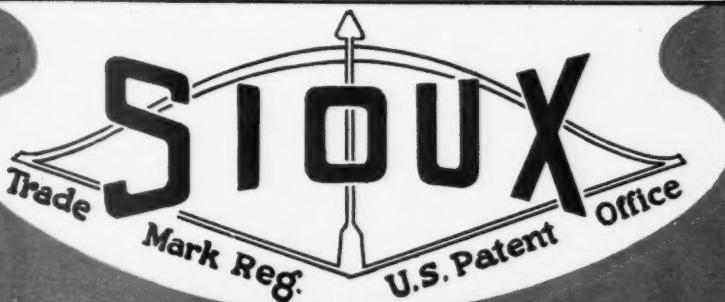
MAIL THIS COUPON

The U. S. Air Compressor Co.
5304 Harvard Ave., Cleveland, Ohio
Please send me Catalog _____ telling
about _____
Name _____
Address _____
City _____ State _____

purchase of materials. You get the benefit. The Standard De Luxe at \$245 is not only the same quality unit it always was—it is an improved unit. It has, in addition to the regular features, a self indicating spring tension



U.S. Air Compressors



**Before You Buy Any
Valve Face Grinding
Machine Investigate
the Sioux**

VALVE FACE GRINDING MACHINE

YOUR JOBBER SELLS IT

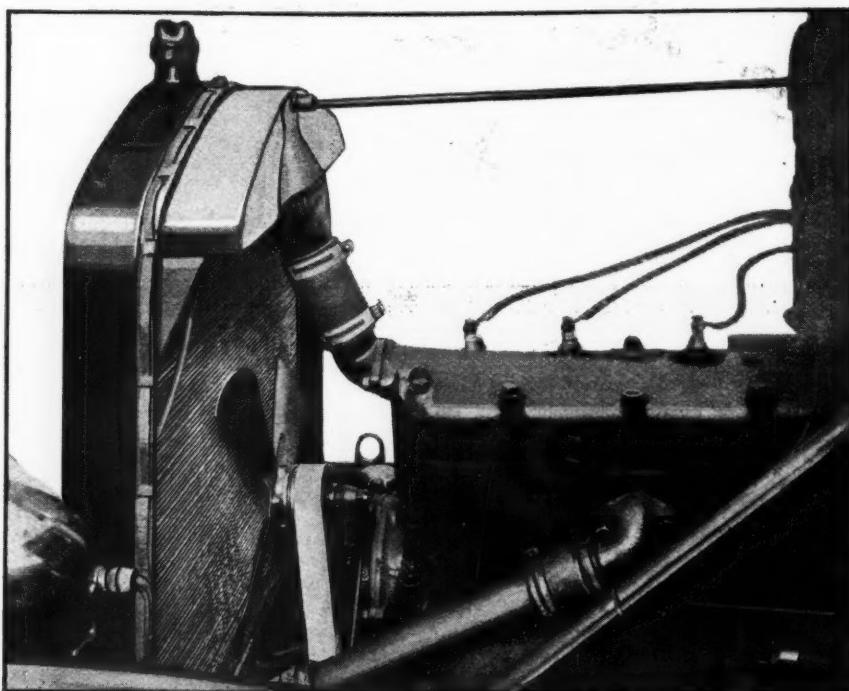
ALBERTSON & CO., SIOUX CITY, IOWA



7,000

STEAM COOLED FORD

THE ORIGINAL STEAM COOLED FORD



At light loads the steam formed is condensed in the mass of water in jacket and top tank.

Under heavy load the steam not being condensed is blown off and finally the cylinders are left bone dry.

Until this occurs the Ford engine is cooled by the formation of steam.

With the
RUSHMORE STEAM COOLING SYSTEM

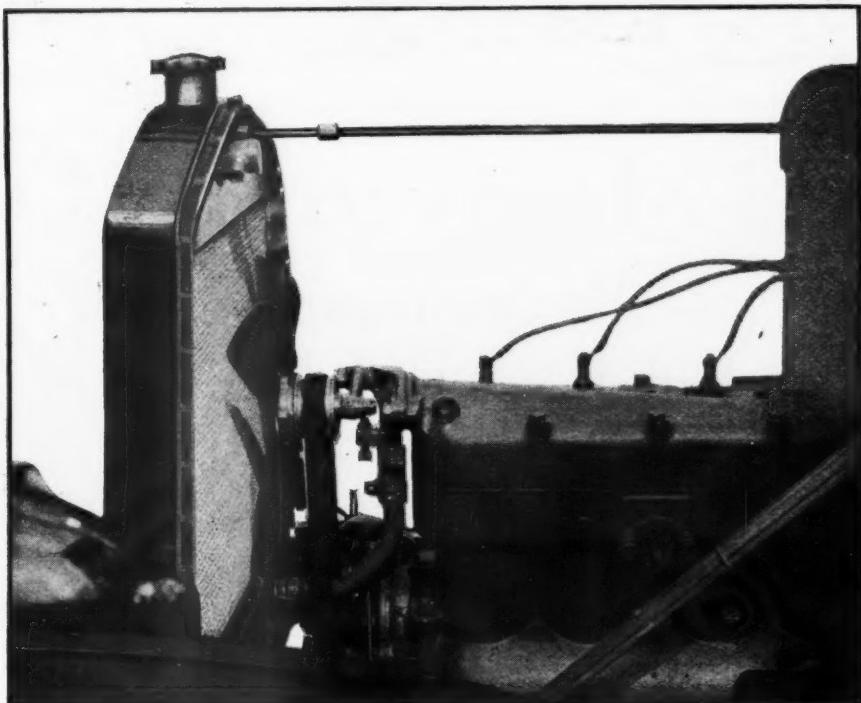
The water boils *all the time* as it does in the regular Ford under heavy load

RUSHMORE LABORATORY



ENGINES NOW RUNNING

THE MODERN STEAM COOLED FORD



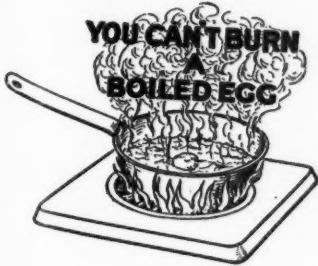
BUT

The steam is condensed in the radiator and no water is lost, therefore

OVERHEATING IS IMPOSSIBLE

Practical Advantages:

1. Crankcase dilution practically eliminated.
2. Starting from cold in winter the engine reaches maximum efficiency in less than one mile.
3. Twenty to forty per cent more miles per gallon.
4. No loss of alcohol in winter.
5. Considerable saving in weight and first cost.
6. Containing no water, radiator is practically immune from leaks.
7. Engine cannot possibly overheat.
"By-product"
8. Real steam heater in body.



A TORY, Plainfield, New Jersey



What AC Means to the Dealer

AC Spark Plugs

 More than 80% of all the cars produced in this country, Fords excluded, are factory equipped with AC Spark Plugs. Among these cars are:

Apperson
Buick
Cadillac
Case
Chandler
Chevrolet
Chrysler
Cleveland
Davis

Dodge
Brothers
Durant
Eaton
Flint
Hudson
Hupmobile
Kissel
Marmon

Maxwell
Nash
Oakland
Oldsmobile
Paige
Star
Velie
Westcott
Wills Sainte
Claire

AC 1075 for Fords

 One glance tells the whole story—Why the AC 1075 is an especially good plug for Fords—Here are its features:

- 1 Spring Terminal Clip
- 2 Heavy Body Porcelain
- 3 High Temperature Fins—Patented Carbon-proof Porcelain
- 4 Heavy Electrode Forms Natural Oil Drain.

Dealers who carry a good stock of AC products can build a profitable business. The demand is assured because of their use as car equipment.

Backed by strong advertising.

* * *

They afford you the margin of profit you should get.

AC Spark Plug Company, FLINT, Michigan
Makers of AC Spark Plugs—AC Speedometers—AC Air Cleaners

AC-SPHINX
Birmingham
ENGLAND

AC-OLEO
Levallois-Perret
FRANCE

AC Speedometers



The Model for Fords

Miles per hour, miles per trip, total mileage—it tells them all. Simple direct drive is a big improvement over previous types of drives as it does away with the swivel joint. Complete with all attachments and once installed is a source of constant satisfaction. The cost is surprisingly low—\$15. (\$21.00 in Canada.)

That AC Speedometers can be depended upon for trouble-free operation, is evidenced by the fact that they are original equipment on such cars as Buick, Cadillac, Chevrolet, Chrysler, Gray, Maxwell, Oakland, Oldsmobile and GMC Trucks.

AC Air Cleaners



Easily installed as it connects directly to the carburetor.

Once installed it requires no attention, having no moving parts to get out of order, and its high permanent cleaning efficiency keeps down repair bills.

Comes complete with all attachments and is reasonably priced—\$5.00 to \$7.00 (\$7.00 to \$10.00 in Canada) depending on the size required.

The new American visible

**Speed, Simplicity
Low Up-keep**

These are outstanding qualities of this pump (Cut 140-V)—an improved rotary type, with handle turning continuously *in one direction*—not back and forth.

Fitted with adjustable overflow, measuring exactly the gallonage desired; easily operated, 15 turns of handle filling five gallon container; of sturdy construction and few parts—a pump that users are re-ordering with enthusiastic letters about its operation.

Underwriters Label furnished when necessary.
Let us send you some *very* interesting information about this pump.

American Oil Pump & Tank Co.
1159 Findlay St. Cincinnati, Ohio
Export Dept., 549 W. Washington St., Chicago.

INVESTIGATE the new AMERICAN of LOWER COST

**HEAT-SHAPED TO INSURE
PERFECT ROUNDNESS**

Pedrick

**HEAT-SHAPED
PISTON RINGS**

Two Big Merits

First, we build an unusually good ring—heat-shaped, it stays round and keeps the motor new longest.

Second, we help you sell it—folders, counter and window displays, size books, signs, etc.—all material that makes car owners come back to you for advice and help.

In the combination package, the Pedrick oil ring costs the same as the compression ring—25c and up. Both rings are heat-shaped.

Our new bulletin tells the whole story. It's worth writing for. FREE. Ask any jobber salesman, or write to the home office.

This S. A. E. reprint tells about the heat-shaping process and proves its superiority. It is the strongest piece of piston ring literature ever published.



Wilkening Manufacturing Co.
Philadelphia

The Women



AUTO-VAC changes the old tiresome job of brushing out the closed car—to ten or fifteen minutes of clean, easy work. Is it any wonder that dealers everywhere report unusual sales of this new and unique equipment.



are quick buyers of Auto-Vacs

No other accessory you handle will open a woman's purse easier or quicker than the AUTO-VAC. In the home, the Vacuum Cleaner is accepted as the best means of cleaning rugs and upholstery. In the closed car—AUTO-VAC offers the same convenience—the same measure of usefulness—the same performance. With handsome polished aluminum nozzle—the finest web-covered rubber hose—nickled cowl shut-off valve and nickled compression tight connections, yet AUTO-VAC sells for only a small fraction of the price of the regular household vacuum cleaner.

The reasonable retail price means volume sales with a generous dealer margin. Get in on our ground floor dealer proposition now. Ask for the details.

RAY MANUFACTURING CO.
Cedar Rapids, Iowa



Is it any wonder that flatlites sell and sell and sell?

Gentlemen:-

During the month of January we were quite successful in the sale of Headlight Devices and presumed you would be interested in our sales of FLATLITE REFLECTORS.

During the month we sold 646 pairs of FLATLITES, or a volume of over \$3000.

Our station, as well as other headlight adjusting stations, whom we served, were very busy and we found the ease of installation was a very important factor in favor of FLATLITES.

The above mentioned features, together with a satisfactory margin of profit and turnover, very desirable line.

We also desire to thank you rendered by your shipping department given us snappy service.

Your very
ORANGE COUNTY
By

We find in most cases it is very easy to show the motorist the advantages of reflectors over lenses, and in a large number of cases the purchaser has returned, thanked us for the suggestion and stated "That they now had better light than ever before"

"flatlites bring daytime safety to nighttime driving"

How flatlites reduce driving hazards

Flatlite reflectors greatly reduce the hazards of night driving. They throw a brilliant flood of illumination far down the road, with no lens absorption to cut the light. A fluted design holds the rays below eye level—preventing glare without sacrificing light. Flatlites are legal in every state, and use plain window glass in place of patent lenses. Installation is easy. You place flatlites right over the old reflectors. Retail prices are \$3.50 to \$7 a pair, including glass.

Write for trade particulars

THE AMERICAN FLATLITE CO.

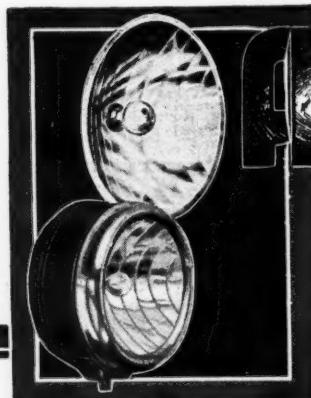
Department A

Reading Road at Dandridge St.
Cincinnati, Ohio



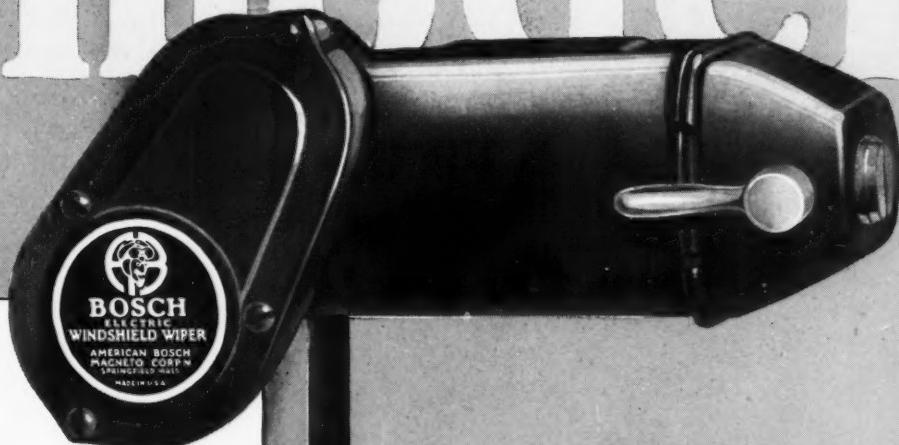
HERE'S a dealer doing a business that any jobber would be proud of. A \$3000 monthly volume on a single accessory comes pretty close to being a record—but with the flatlite principle taking hold so fast it's a record any dealer can shoot at.

Flatlite solves an old roadlighting problem in a new and simple way, and is making night driving safer for all who use it. That is why it is bringing such profit to dealers who sell it, and will do as much for you if you will write us for the details.



flatlite
REFLECTORS
for replacement in any headlamp
HEADLAMPS
to fit all cars

new model



It's Quiet—

Ideal for closed
as well as open cars

The new Bosch Electric Wiper is ideal for closed cars, because it's so quiet—there's no objectionable hum, clicks or clatter to reverberate inside the car and annoy the passengers. It's attractive in appearance, too—it looks well on even the most expensive cars.

It operates electrically—doesn't depend on, or interfere with the car engine. Uses very little current but develops ample power—enough even to operate the Bosch Tandem Wiper as well, and give full vision to both front seat occupants.

Speed is always the same—doesn't hurry one minute and lag or stop the next. And it is nationally advertised—every mail brings scores of inquiries.

SELL THE BOSCH WINDSHIELD WIPER and you can be absolutely sure of satisfaction among your customers. It's the highest quality, most up-to-date, efficient and dependable wiper available. Price is \$9.50 complete (\$13.00 in Canada.)

Get a stock and make this accessory your top liner. And order Bosch Tandem Wiper Attachments, too. They list at \$1.75 and can be sold easily with Bosch Electric Wipers. Act quickly—order TODAY.

AMERICAN BOSCH MAGNETO CORP.

Main Office and Works: Springfield, Mass.

Branches: New York Chicago Detroit San Francisco

BOSCH
ELECTRIC
Windshield Wiper
and Tandem Attachment

*"As Necessary
As Brakes"*



The Bosch Tandem Attachment gives full vision to both front seat occupants—\$1.75 extra

TYPE W20 — 6 VOLT
BOSCH
ELECTRIC
Windshield Wiper
Fits any car—open or closed
Complete Instructions Inside
AMERICAN BOSCH MAGNETO CORP., SPRINGFIELD, MASS.



MARK

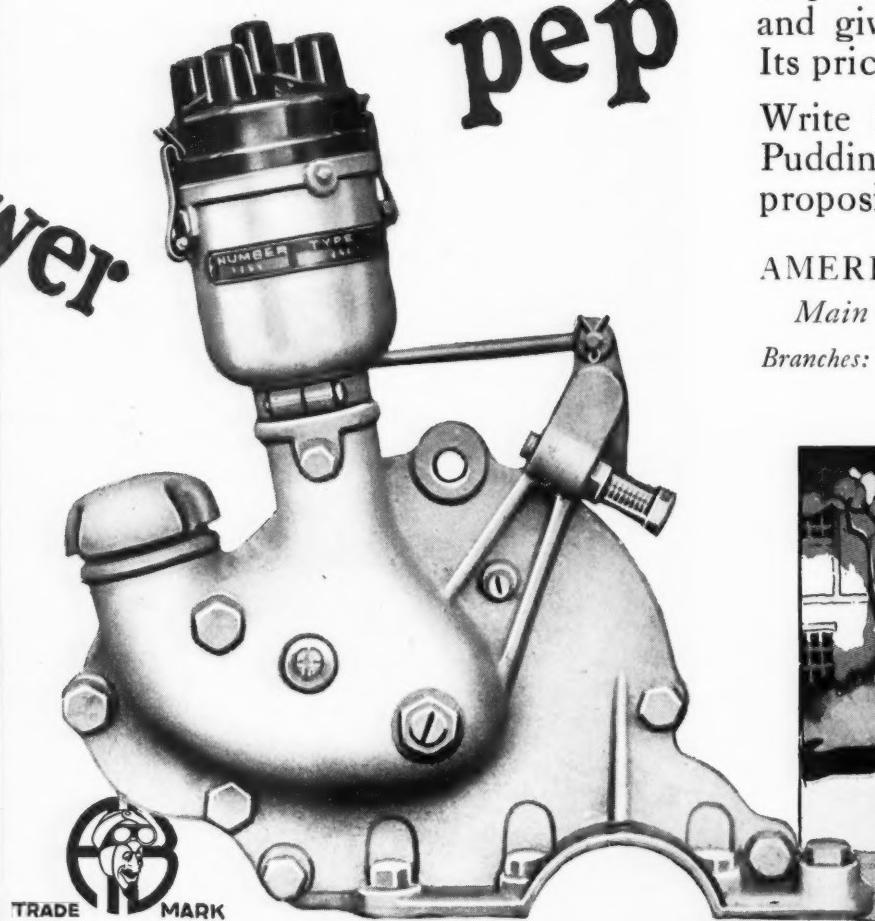
quick start

pep

speed
power
automatic

water
proof

pep



Here's the ignition system to sell Ford fleet owners, salesmen who use Fords, and the discriminating trade generally.

Those people are glad to pay a little more to get the very best—the system which includes the Bosch Compensating Governor and the Bosch Waterproof Coil.

The Compensating Governor is the outstanding feature of the Bosch DeLuxe Ignition System. It is an ingenious device which automatically advances and retards the spark to EXACTLY meet the engine's characteristics, making it follow the curve of spark advance which tests have shown will keep the engine operating at maximum efficiency. It does this without aid from the driver, who can entirely ignore his spark lever when driving.

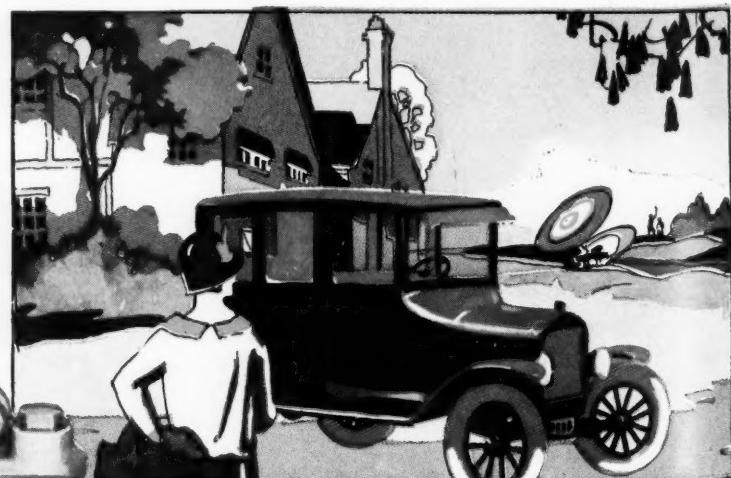
The Bosch DeLuxe System is guaranteed to perform with remarkable efficiency, and give long and dependable service. Its price is only \$25 (\$35 in Canada.)

Write for free booklet "Proof of the Pudding" and ask about liberal sales proposition open to recognized dealers.

AMERICAN BOSCH MAGNETO CORP.

Main Office and Works: Springfield, Mass.

Branches: New York Chicago Detroit San Francisco



BOSCH DeLuxe Ignition for FORDS



New Departure Ball Bearings

It was New Departure Day at Indianapolis

New Departure-equipped cars finished first, second, third, fourth, sixth, seventh, eighth and ninth in the great annual racing classic on Memorial Day. And note that in this most gruelling of contests, where the only consideration is unfailing endurance, the great majority of builders and designers select stock New Departures—and have done so for six consecutive seasons.

Direct Subtraction



Not "Sometime" but NOW

Think of an automobile of 1901 vintage and what we are going to say will have the proper background

The day of the high or low cost straight adding machine has gone.

The day of the direct subtractor has come.

Approximately one year ago you had to pay from \$600 to \$1000 to buy a 100% printed proof, one operation direct subtraction featured adding and listing machine.

Then Sundstrand produced direct subtractor models with adding, listing and automatic-shift multiplication features at a price range from \$150 to \$300!

And now, that adding machine users have learned the tremendous advantages of direct subtraction, it is becoming more and more difficult to sell a machine without this feature at any price.

Automatic Cross-Tabulator, carriage position control, \$385, motor extra



Model was announced at a price range which made it available to every type of business, large or small.

The other famous Sundstrand standard features are included in all models—automatic-shift multiplication, one-hand control, 100% printed proof, forced printing of totals, simplicity and speed of 10-key keyboard, convenient desk size.

Let us demonstrate. You won't be obligated. Write to Department M-6 for latest literature.

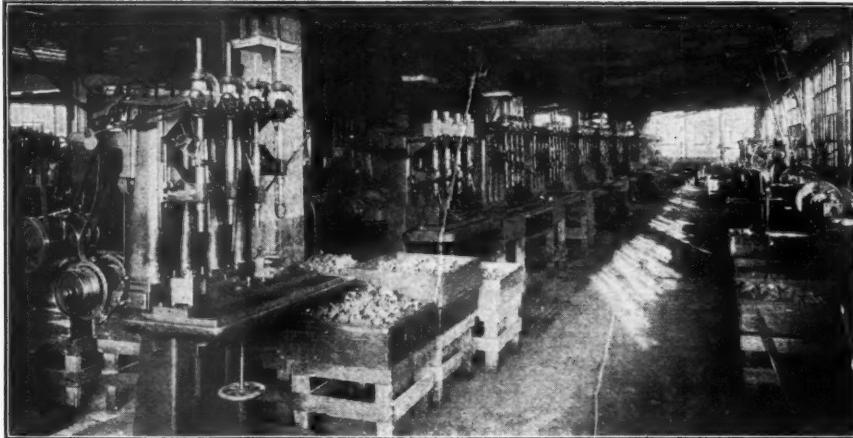
SUNDSTRAND ADDING MACHINE CO.
Rockford, Ill., U. S. A.

Sales and Service Stations everywhere in the United States and foreign countries

Sundstrand
ADDING AND CALCULATING MACHINES
Adding (+) Subtracting (-) Multiplying (x) Dividing (÷)

ZENITH

Zenith's Large Scale Production Reconciles Quality and Price



*Looking down one aisle in the
drill press department of the
present modern, perfectly
equipped Zenith factory.*

CONSIDERING the fine workmanship and accuracy that goes into every Zenith part one might wonder how over 3000 Zenith carburetors could be produced in one day.

BUT if one could inspect the large Zenith factory and see the special machinery designed and built by Zenith, the reason would be plain.

SPECIAL machines, modern methods and efficient lay-out all make possible large scale production at a cost surprisingly low when the high quality of Zenith carburetors is considered.

ZENITH

CARBURETOR

*There is a Zenith for every
car, truck, bus, tractor, air-
plane, boat or industrial engine*

ZENITH - DETROIT CORPORATION

Manufacturer of

ZENITH CARBURETORS

DETROIT

MICHIGAN

Branches:

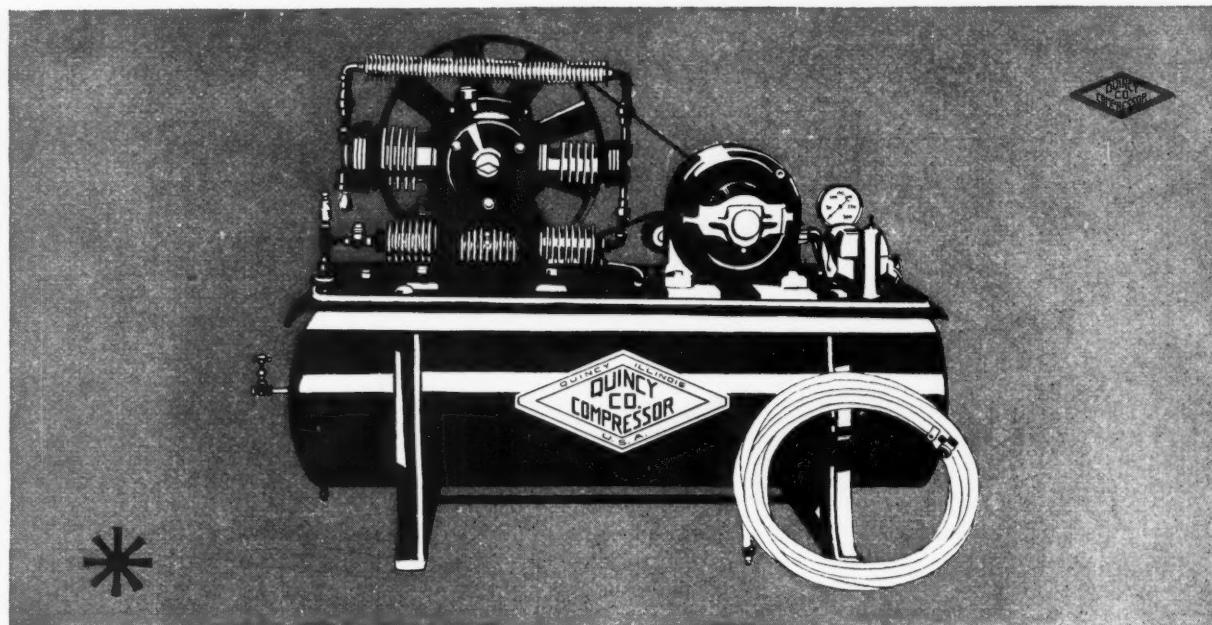
NEW YORK

CLEVELAND

CHICAGO

Over 1100 Service Stations

We are not very old

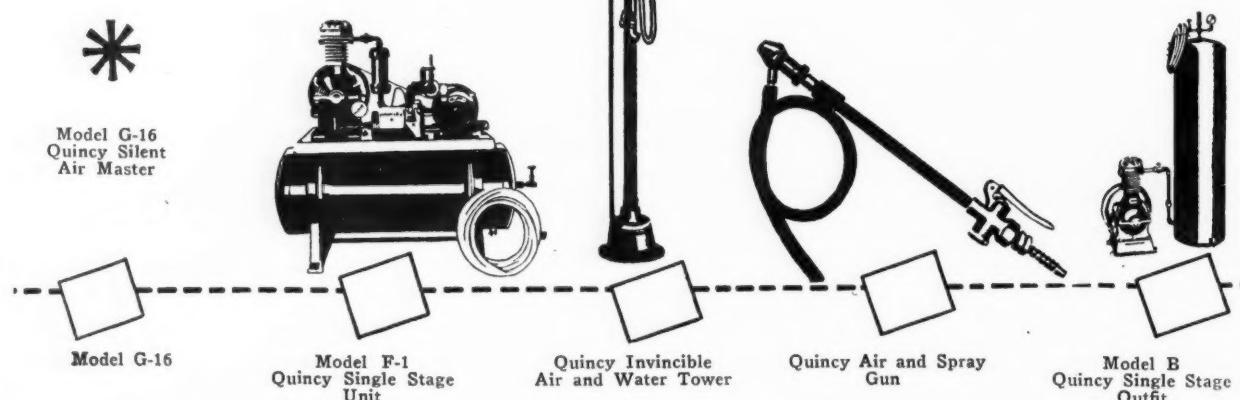


We have no apologies to make for not being an old-style, old-line company. We have been in business for several years, successful years, but we are still a young and aggressive concern. And we intend to stay that way. Experienced men design our compressors. Good workmen make them. We have established a fair and logical sales policy. We turn out sturdy, silent compressors, modern and up-to-date in every detail. We sell them at reasonable prices. And our business has prospered. The worth

of our product is becoming widely known. We are recognized as fair to deal with, easy to get along with. It will pay you to fill out and mail this coupon to us today. Let us make your acquaintance, beginning now.

Quincy Compressor Co.

Name formerly
Wall Pump and Compressor Company
217 Maine St., Quincy, Ill., U. S. A.



Quincy Compressor Co.,
217 Maine St., Quincy, Ill.

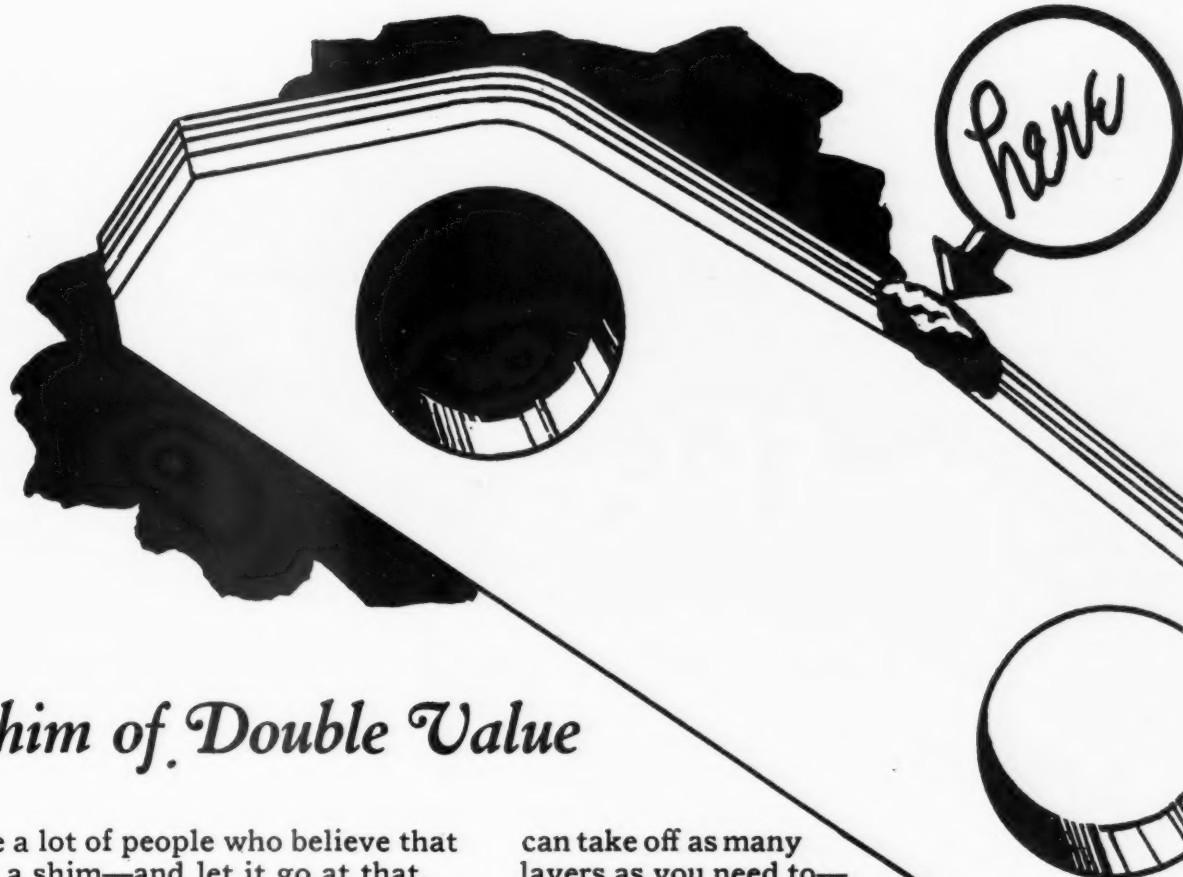
Please send me further information about the equipment I have checked.

Name.....

Street.....

City.....

State.....



A Shim of Double Value

There are a lot of people who believe that a shim is a shim—and let it go at that.

But this advertisement is addressed to the men in the shops—who have been dead up against the back breaking, heart breaking job of fitting to a hair's thickness a main bearing or connecting rod bearing.

You men know that you often put in a shim that you think is the right thickness. After you get it in, you find it isn't. You have to put in another layer—or take out a layer.

Get this fact. The National Shim is the only ready to use shim so built that you

can take off as many layers as you need to—and then put them back on again—if necessary. And in addition, because they have no solder between the leaves, there is absolutely no danger of shim compression.

National Shims are built in exact shapes and sizes to fit every size and type of motor. Ready to use.

Ask your jobber for National Shims. Draw from service stock—or buy from him handy assortments, packed in handy cabinets, containing sets of most popular types and sizes.

NATIONAL MOTOR BEARING CO.

1609 Pine Street, San Francisco, Calif.

1449 So. Michigan Ave., Chicago, Ill.

83 Grand St., New York, N. Y.

NATIONAL SHIMS



No. **125** BENCH LATHE
PRICE \$36 *Complete as illustrated*

A small bench lathe for your shop

ANY man who does motor repair work will find plenty of use for this bench lathe. Length over all, 25 inches; height, 11½ inches; swing, 7 inches; extreme distance between centers, 12 inches. Weighs only 30 pounds.

Well-made and finished with black and red enamel. The bed is milled. All working parts handsomely polished. Live spindle has a cone bearing to take up wear. Tail stock has screw and lever feed. Cone pulley has three steps—1½, 2½ and 3½ inches in diameter. Price, \$36.

A complete line of attachments are available to fit this lathe, such as slide rest, lathe tools, compression check and collets, milling attachments, turret attachments, etc.

Bench Lathe No. 494

Same construction as No. 125 above, but slightly larger. Length over all 31 inches; height, 11½ inches; swing, 7 inches. Extreme distance between centers, 18 inches. Weight, 36 pounds. Price, \$40.

Big Catalog FREE

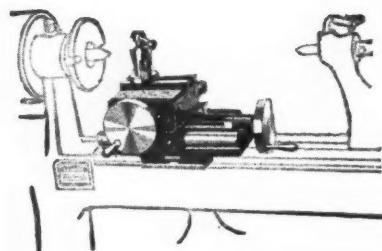
These bench lathes are good examples of Goodell-Pratt Tools. Write for the Goodell-Pratt Catalog. It illustrates and describes each of the other 1500 Good Tools. A postcard will bring a copy—FREE.

GOODELL-PRATT COMPANY
Greenfield, Mass., U. S. A.

Toolsmiths—*Makers of Mr. Punch*

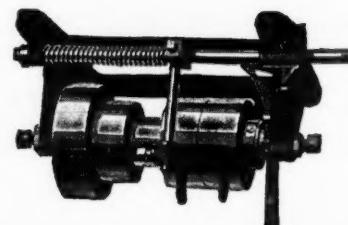
GOODELL-PRATT

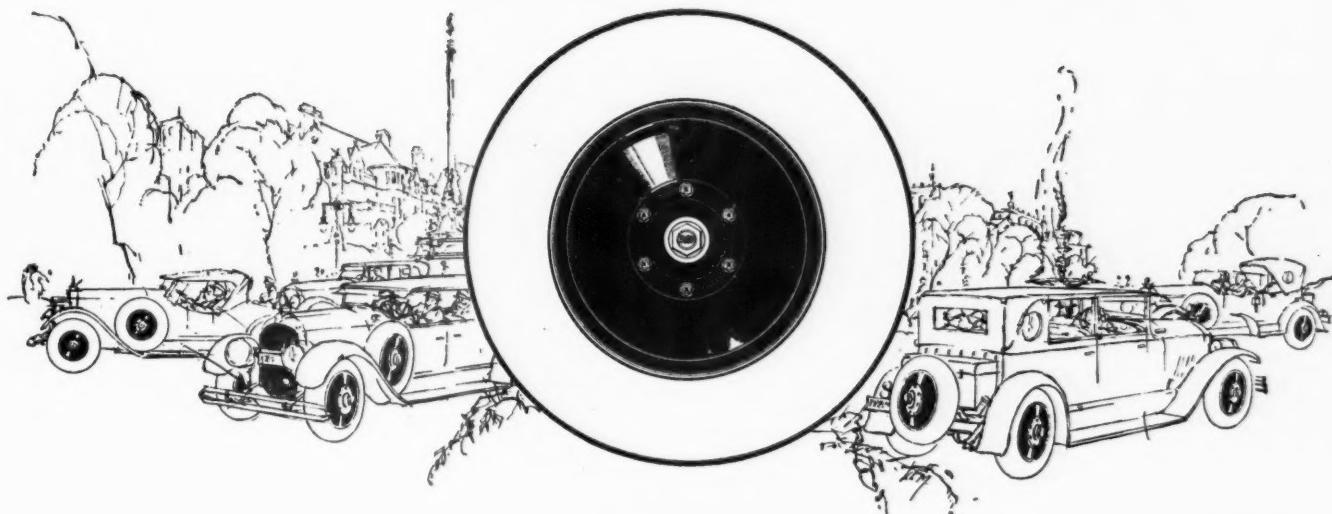
1500 GOOD TOOLS



No. **130** Counter Shaft
PRICE \$11

No. **132** Slide Rest
PRICE \$16





With these wheels the motor car bids a last farewell to its ancestor—the buggy

NATURAL enough that the first automobiles should have looked like buggies . . .

Men took the vehicle at hand and built on it . . .

Discarded, gradually, what they found useless . . . added what they found necessary.

In a score of years, this slow process of growth produced a new form. Then came refinement.

Now the automobile has an individuality all its own—lines and weight in keeping with its utterly new accomplishments . . .

But for one survival—one throw-back to its buggy ancestry . . .

Its wheels! For the wheels of many an otherwise modern motor car are almost identical with those of the ridiculous machines which first "putt-putted" through the streets, to the consternation of all horses and most of mankind . . .

The wheels are hangovers of the Nineteenth Century!

The inevitable change is now taking place.

A great engineer realized how much the automobile was ahead of its wheels . . .

He selected the material which makes possible the other parts of the car—steel.

But he realized that a new design was as necessary as sturdier material. He created this new design . . .

He built the only convex wheel, using the natural resilience of steel to the utmost to save the car from road shocks . . .



Permitting the placing of brakes and king-pins within the wheel, for more positive braking and easier steering . . .

Giving the brakes greater protection from mud and water.

His wheel was given the severest tests conceivable, on the shell-pitted roads of Europe under the pressure of War. It conquered!

Fifty per cent. of European cars are now equipped with it. America is turning to it . . .

The Budd-Michelin Wheel!

Remember, every "steel wheel" is not Budd-Michelin. No other can have its exclusive design, its exclusive features.

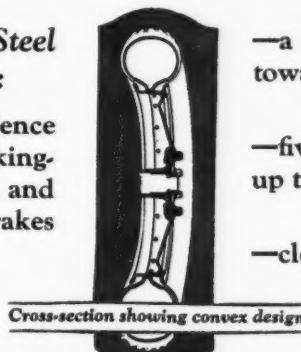
Read below the list of advantages.

B U D D
WHEEL COMPANY
Detroit and Philadelphia

BUDD-MICHELIN—the All-Steel Wheel gives you these advantages:

—a scientific convex form, increasing resilience and permitting the placing of brakes and king-pins within the wheel, for better braking and easier steering—for greater protection of brakes from mud and water

—a demountable wheel which hides the brakes but gives immediate access to them when adjustments are needed



—a light wheel (lighter than wood), tapering toward the rim, making starting and stopping easier

—five wheels to a set. An extra wheel to dress up the rear of the car, easy to substitute in case of tire trouble. No rims to remove

—cleanliness. No spokes to collect dirt. A more enduring finish than wood will take

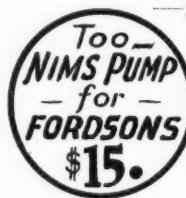
—everlasting strength, promoting safety. Triumphant beauty!

Correct working principle

After building and studying more than 100 different types of Ford pumps—

of different materials
with various lubrication provisions
with pulleys of different shapes
with impeller wheels of different pitch and design
with drives of different character
with bushings of many types and materials—

We offer you the Nims Pump as you see it here—a pump we honestly

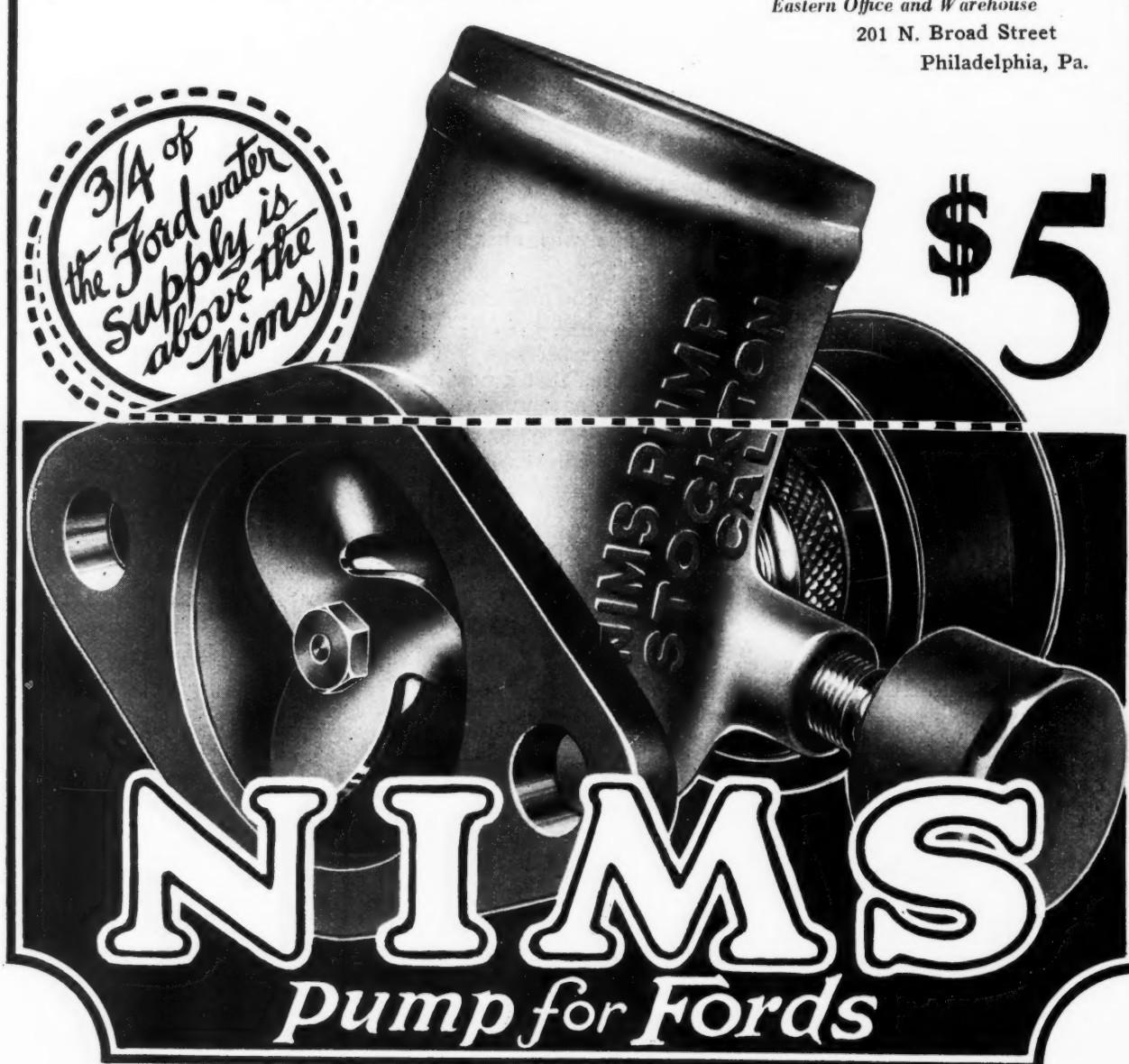


believe to be the finest Ford pump on the market—regardless of price—a pump as light in weight and efficient in action as the various units of the good Ford car itself.

Order half a dozen Nims Pumps from your jobber. They will sell—and satisfy.

NIMS PUMP COMPANY
Stockton, Calif.

Eastern Office and Warehouse
201 N. Broad Street
Philadelphia, Pa.



Features that sell
the new Chevrolet

Business has been so good with the Chevrolet dealers since the first of this year that they have been able to make immediate delivery on all the cars that they could get. And the Chevrolet factories have been running full force in an endeavor to supply this demand and to make 1925 the most profitable year that Chevrolet dealers have ever had — to make the Chevrolet franchise the most valuable in the industry.

CHEVROLET MOTOR COMPANY
DETROIT, MICH.
DIVISION OF GENERAL MOTORS CORPORATION

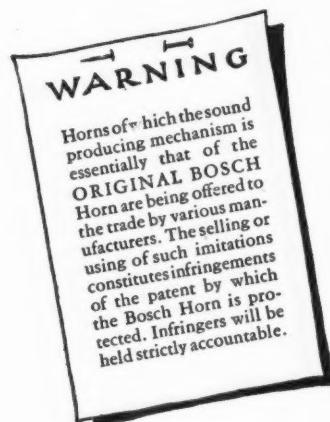


QUALITY AT LOW COST



This trade mark and the full name, Robert Bosch, are always inscribed on every piece of ORIGINAL BOSCH automotive equipment. Look for these identifications. They are your guarantee of ORIGINAL BOSCH quality as known the world over since 1887.

All over the country~ the *Original* Bosch Horn is being chosen by the owners of fine motor cars



On broad, smooth boulevards; in the traffic-tangled streets of cities; along far-flung country roads—wherever fine motor cars are driven—you will hear the musical, penetrating tone of the ORIGINAL BOSCH Horn. An efficient—and courteous—warning signal.

Naturally, being an ORIGINAL BOSCH product and, therefore, of unquestioned worth and accuracy, this new, high-frequency warning signal is being profitably handled by many of the country's best automotive dealers.

To such of these merchants who have not already stocked the ORIGINAL BOSCH Horn the invitation to become selling agents is extended. Write for full information to Robert Bosch Magneto Co., Inc., 109 West 64th Street, New York, N.Y. Chicago branch, 1302 South Wabash Avenue.

LIST PRICES

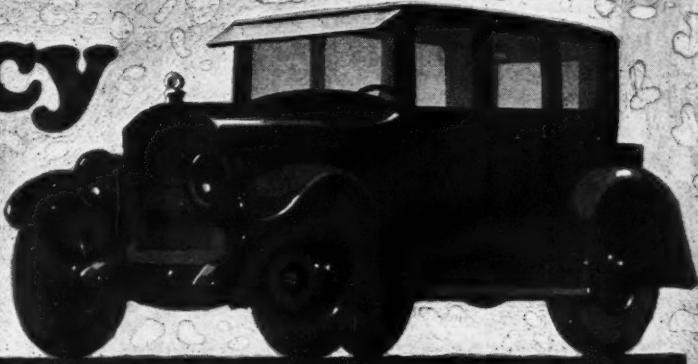
"Junior" for motorcycles.....	\$16
"Standard", for passenger cars.....	\$21
"Master" for large cars, motor busses and motor boats.....	\$25

When ordering your stock of ORIGINAL BOSCH Horns, please be sure to specify the model or models desired, and the voltage.

The Original *Bosch*

ROBERT · BOSCH · MAGNETO · COMPANY · INC.

**Put Your Car on a
100%
Efficiency Basis ~
And keep it there**



Special Stromberg Carburetors

Are designed and built especially for each make and model of automobile — they meet the motor's individual requirements and embody the most advanced principle of carburetion.

Equip any automobile with a Stromberg Carburetor — there's an immediate and mighty improvement—easier starting, more pep—greater power — lower fuel consumption — thorough dependability.

139 representative American manufacturers use them as standard equipment.

Over 3000 Sales and Service Stations in the United States.

DEALERS

This is one of the striking and forceful Stromberg advertisements appearing in the Saturday Evening Post.

Advertising of this distinctive character, backed by the power of Stromberg super-quality, is certain to result in greatly increased demand — and the development of better business for all Stromberg dealers.

Take advantage of it. Write for our attractive sales plan. Participate in the unusually liberal and positive profits assured by Stromberg representation.

**STROMBERG MOTOR
DEVICES CO.
65 E. 25th Street : : : CHICAGO**

KESTER Self Fluxing SOLDER

Simple, Safe and Sure
Requires Only Heat



KESTER Acid Core SOLDER

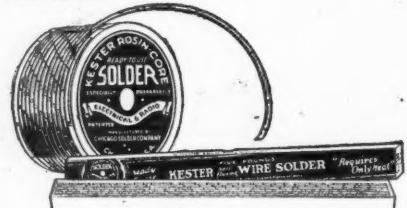
For general soldering and heavier electrical work. Self Fluxing—"Requires Only Heat." Standard size No. 3 about 1/8 inch in diameter, runs about 30 feet per pound. Packed on 1, 5 and 10 pound spools. Special gauges also available.



Kester Metal Mender

The Household Solder

Here is the small package of Acid Core Solder. So simple anybody can use it. Ten cans about 1/4 pound each are packed per carton. Ten cartons (100 cans) to the case lot.



Kester Rosin Core Solder

For very delicate electrical and radio work. Contains highest quality metals and rosin flux. Standard size about 3/32 inch in diameter, runs about 50 feet per pound. Packed on 1, 5 and 10 pound spools and 18 inch sticks in 5 pound boxes. Special gauges also available.



Kester Radio Solder

(Rosin Core)

Safe, Sure and Simple—approved by radio engineers. Harmless to the most delicate parts. Absolutely non-corrosive flux makes low-loss joints. Ten cans about 1/4 pound each per carton. Ten cartons (100 cans) to the case lot.

GENUINE SOLDER

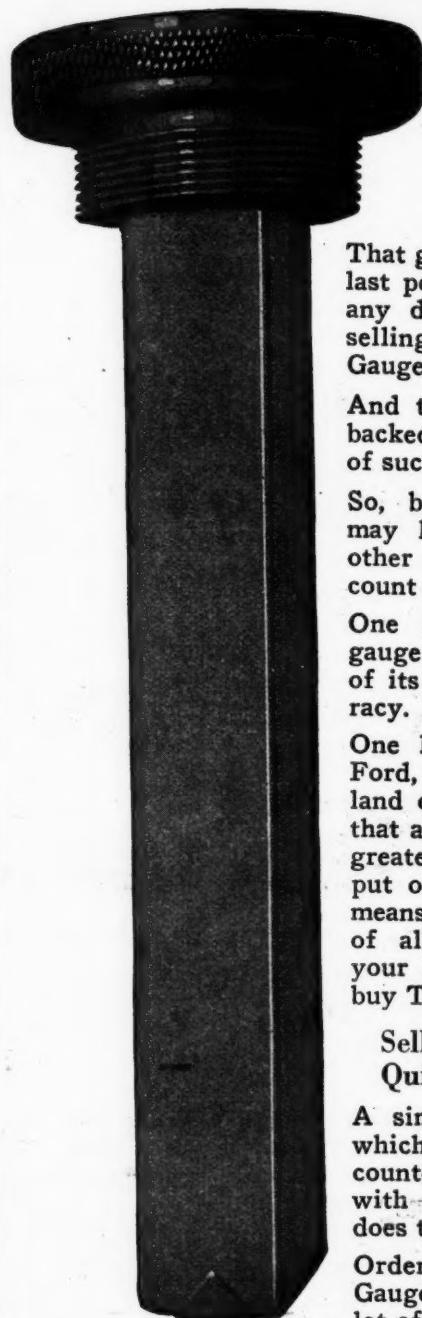
CHICAGO SOLDER COMPANY

4203 Wrightwood Avenue, Chicago, U. S. A.

Originators and world's largest
manufacturers of Self Fluxing Solder

Your Jobber Can Supply You

Guaranteed for the life of the car



That guarantee removes the last possible objection that any dealer could have to selling TASCO gasoline Gauges.

And that guarantee is backed by our forty years of successful business.

So, bad experiences that may have been had with other tank gauges don't count with TASCO gauges.

One look at a TASCO gauge will convince anyone of its sturdiness and accuracy.

One look is all that any Ford, Chevrolet or Overland owner needs to know that a TASCO is about the greatest convenience he can put on his car. And that means that more than half of all the car-owners in your locality are ready to buy TASCOs.

Sells \$1 25
Quick 1 Retail

A simple display cut-out, which takes up very little counter space and is packed with every dozen gauges, does the selling.

Order a stock of TASCO Gauges today. You'll sell a lot of them!

THE AKRON-SELL COMPANY

"40 Years in Business"

AKRON, OHIO, U. S. A.



*More People Use TASCO Gauges—
than any other kind. Look for this Dial*

FORDS, CHEVROLETS and OVERLANDS

Thor

Second — The Thor Cooling System Increases Capacity 25%

Here's an advantage that you will appreciate—a feature of vital importance!

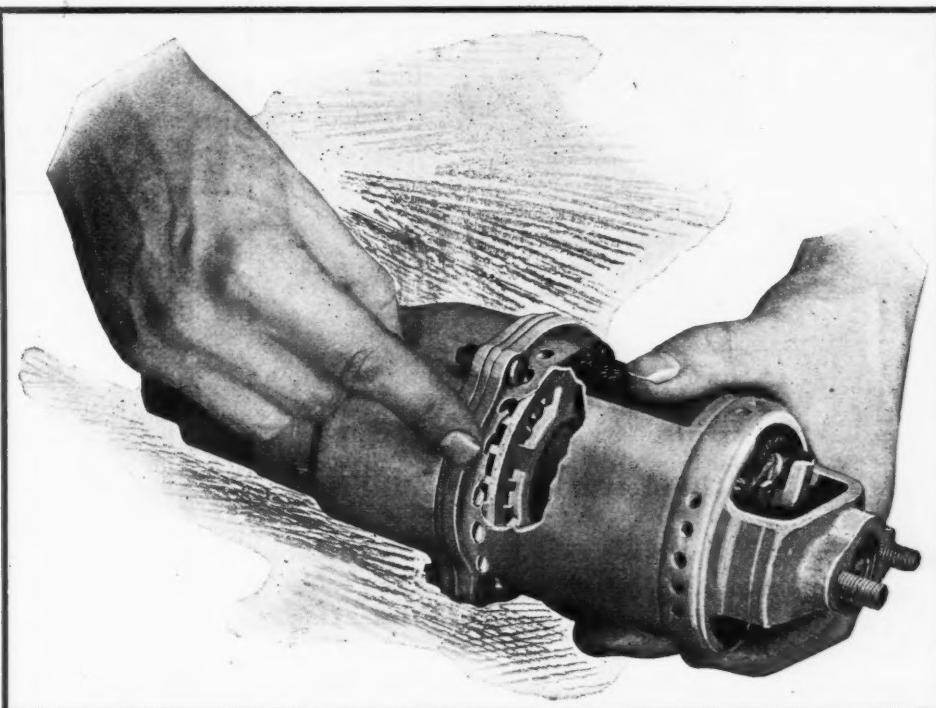
Air cooling of the motor in the Thor, as in other drills, is through vents in the stator housing. But—here's a big difference—the vents in your Thor are not drilled radially, but are at a tangent to the fan blades' motion.

It is, of course, easier to drill radial vents, but we make them tangential to conform to the natural movement of the air current, and as a result you get 50% more cooling air drawn through the motor.

That additional volume of cooling air reduces heating 25%, as compared with the radial vent, and increases the safe capacity of the motor 25%.

Construction Makes Portable Electric Drills Pay Their Way

(This is another of a series of advertisements showing *Thor* superior construction. Ask for booklet "Inside Facts" and get the whole story.)



TEN DAYS' FREE TRIAL

INDEPENDENT PNEUMATIC TOOL CO.
600 W. Jackson Blvd., Chicago.

For a test in your own shop check the tools you want and mail this coupon. No obligation on your part! We prepay express charges.

THOR ELECTRIC DRILL THOR ELECTRIC REAMER THOR ELECTRIC TAPPING MACHINE THOR ELECTRIC SCREW DRIVER THOR ELECTRIC GRINDER

Name _____

State _____

City _____

INDEPENDENT PNEUMATIC TOOL COMPANY

BIRMINGHAM, ALA. BOSTON, MASS.
AGE HERALD BLDG. LITTLE BLDG.

PHILADELPHIA, PA. CLEVELAND, OHIO
DENCKLA BLDG. UNION TRUST BLDG.

DETROIT, MICH.
GARFIELD BLDG.

GENERAL OFFICES
600 W. JACKSON BLVD.

CHICAGO, U.S.A.
FACTORY AURORA, ILL.
AGENTS THE WORLD OVER

EASTERN OFFICE: 1463 BROADWAY AT 42ND ST., NEW YORK, N.Y.

LONDON OFFICE: 40 BROADWAY, WESTMINSTER, LONDON S.W.1, ENGLAND

MONTREAL, QUE.
10 ST. ANTOINE ST.

PITTSBURGH, PA.
BESSEMER BLDG.

TORONTO, ONT.
32 FRONT ST. WEST

ST. LOUIS, MO.
411 OLIVE ST.

SAN FRANCISCO, CAL.
61 FREMONT ST

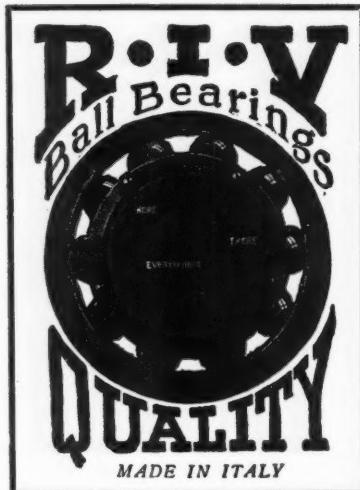
Thor
HOISTS: GRINDERS: RIVETING HAMMERS: CHIPPING: CALKING: FLUE BEADING AND
SCALING HAMMERS: SAND RAMMERS: RIVET BUSTERS: CORE BUSTERS: CLAY DIGGERS:
AIR MOISTURE SEPARATORS:
PNEUMATIC TOOL ACCESSORIES:
HOSE AND COUPLINGS:

ELECTRIC DRILLS, REAMERS,
TAPPERS, GRINDERS AND
SCREW DRIVERS.

**PNEUMATIC
TOOLS**



**ELECTRIC
DRILLS**



A Living Profit for Automotive Electric Jobbers

Fifty-seven more automotive electric distributors are eligible for the franchise to serve their trade with R. I. V. ball bearings in the electrical sizes, both open and closed types.

They must be *real* wholesalers—distributors in the true sense.

We shall want them to ask for and examine samples of our bearings—to prove to themselves by actual touch the precision and the quality of the R. I. V. product.

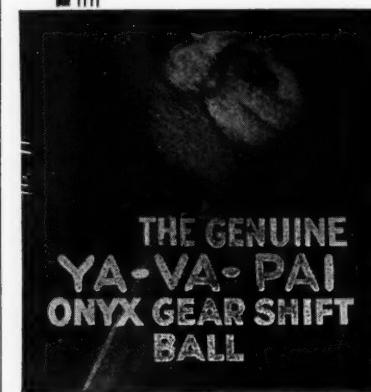
When they have convinced themselves of the superior quality of R. I. V. bearings, we shall then present a proposition that the greatest automotive electrical distributor in this country just *grabbed* when it was offered.

Its profit possibilities represent the difference between selling ball bearings at a *profit* and passing them out as an accommodation.

If you are interested, don't wait for an invitation—write at once.



Broadway at 57th St.
Fisk Building, New York City
Branches: Detroit and San Francisco



**Sells
on
Appearance**

The YAVAPAI Onyx Gear Shift Ball is attractive to look at. It has about it the fine-car appearance. That is why so many owners equip with it, besides wanting it for its cleanliness, comfort and durability.

Manufactured with standard bushings, and reducers are furnished to fit all cars. Selling faster every day to owners who are fitting up for summer.

Only \$2 in the U. S. A.

Order from your jobber, or write us direct giving his name.

Yavapai Onyx Mining Corp.
Automotive Division
Dubuque, Iowa.

U. S. A.

The Original One-Man Pulling Tool



Standard for 20 Years

This announcement is to advise the new generation of mechanics in every automotive shop that the Crane Wheel and Gear has been perfected in keeping with the growth of the industry. Today, the ordinarily tough jobs of pulling fly-wheels, gears, cams, wheels, etc., are done with the greatest ease—BY ONE MAN—and without injury to the part.

At your dealer's or direct if you mention your dealer's name.

CRANE PULLER COMPANY
SOUTH DEERFIELD, MASS.



Removing Timing Gear from
crank-shaft with No. 0 Crow-
foot puller with three 6 in.
locking arms.



Removing rear wheel of auto-
mobile—a steady powerful pull
—without strain on Puller or
damage to parts.



Braze, solder, melt and fuse with this handy 5-in-1 Outfit

For soldering radiators, straightening fenders, tempering, drawing and thousands of other uses, the Prest-O-Lite 5-in-1 Outfit is always instantly ready. No pumping or generating, Prest-O-Lite Gas from the convenient tanks—universally used for heavy-truck lighting, supplies an intense heat.

The 5-in-1 Outfit includes a torch handle, four interchangeable torch heads and soldering iron attachment. These bring you the exact flame for every requirement. In time saving alone, this outfit will greatly increase the profits of your repair department.

You'll especially like the soldering iron attachment—an iron that needs no preheating or reheating. It is hot almost the instant it is lighted—and it stays hot.

This outfit, complete with six feet of durable rubber hose, tank connection and wrench, comes to you packed in a neat tool roll. Price \$7.50

One tank of Prest-O-Lite Gas is all you need to operate the entire outfit. Thirty-six big gas-producing plants supply thousands of Prest-O-Lite Stations located in all parts of the country. You can always get a full tank for an empty one by paying a small amount for the gas only. Write for complete information today.

THE PREST-O-LITE CO., INC.
INDIANAPOLIS, IND.
New York Dept. J-6 San Francisco

In Canada: Prest-O-Lite Company of
Canada, Ltd., Toronto, Ontario

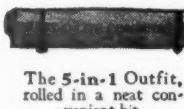


The Prest-O-Lite 5-in-1 Outfit, packed complete in attractive canvas case.

Price \$7.50



Torch handle with "A" Torch Head—also long and short "B" Torch Heads; "C" Torch Head and Soldering Iron Attachment.



The 5-in-1 Outfit, rolled in a neat convenient kit.

Prest-O-Lite

The
Prest-O-Lite
Tank—
the same
kind that
is used
everywhere
today for
lighting
heavy
trucks.



WATERVLIET SPIRAL EXPANSION ALIGNING REAMERS



Special Garage Set, No. 10 PE

THE SET that's needed in every garage or machine shop. No fussing trying to make one reamer fit a dozen different bushings. Just open the sturdy oak case and take your choice of ten sizes from 11/16" to 1 1/8". They'll take care of the piston pin bushings work on 90% of all passenger cars made and many trucks.

Watervliet Reamers will unquestionably improve the quality of your work. They cut evenly with a shearing action that gives a full bearing surface with a mirror-like finish. A smooth sliding fit is what you want and Watervliet Reamers will give it to you.

Resharpening Service

All edged tools need occasional re-sharpening. We'll be glad to re-sharpen your Watervliet Reamers for a service fee of \$1.00.

They Will Not Chatter

Ask your Jobber or Write for Literature

WATERVLIET TOOL CO., Inc.
1037 Broadway Albany, N. Y.

New York—1780 Broadway

Kansas City—711 Mutual Bldg. San Francisco—611 Turk St.

Rie Nie

Trade Mark Reg.

FAN BELTS

THE LARGE SALES—to motorists, dealers and jobbers of Rie Nie Fan Belts and other distinctive Rie Nie Products is an inevitable result when products are made right, priced right, and deliver genuine service over a period of years.

Rie Nie Fan Belts sell easily and quickly because the motorist knows from experience that they are good products—made by a company financially responsible and whose reputation for quality has been established through years of experience, since 1910.

Priced reasonably—like all Rie Nie Quality Products, and a generous margin of profit to dealer and jobber. Popular price plus proven quality means bigger fan belt sales for dealers, and larger profits.

Specialize on Rie Nie Fan Belts.

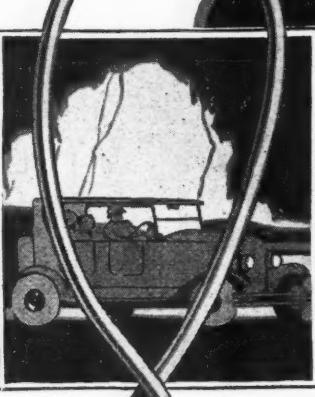
If your jobber cannot supply you, write direct to us—now!

DURKEE-WOOD CO.
MINNEAPOLIS, MINN., U.S.A.

Manufacturers of
Quality Automotive Products that SELL since 1910



FLAT TYPE

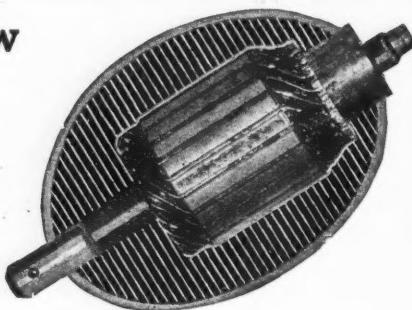


VEE ROUND

Fits any Grooved Pulley, wedging itself tightly and firmly into the groove regardless of the angle of pitch. Their construction insures reliable service, always. It is oil, heat and water-proof, with a sureness of grip that guarantees dependable performance. Self-adjusting! Fewer sizes to carry, insuring quicker turnover.

Is made for Regular or Crowned Pulleys—and will exactly fit the car for which it is designed. Fabric is cut on bias. Herculean strength! Vulcanized in a special cover jacket which prevents ply separation. Durable! Sure Grip! No slipping. A true Rie Nie Product—in every sense of the word.

New Low Prices!



—and how they boost Profits!

Garagemen send their rewind jobs to us as a matter of course. New low prices.

You make a greater profit.

Write for the interesting Fredericks booklet.

FORD Generator Armatures Rewound \$1.50

FORD Starter Armatures Rewound 1.50

ALL OTHER TYPES TWO-UNIT Generator Armatures

Rewound 3.25

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wound 8.00

GUARANTEED to give the same satisfaction as new armatures.

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FREDERICKS
Rewinding Service

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THE most complete Flat Rate information ever offered the trade—originally published in MOTOR AGE of April 30th, 1925—is now available in booklet form at 50 cents a copy.

277 Operations and 42 Cars
are covered in this new manual.
If you want the latest and best information on the subject, don't be without it. It only costs

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MOTOR AGE

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CARS THAT GIVE
OWNER SATISFACTION
THESE MAKERS DEMAND THE BEST BY TEST
MARVEL CARBURETERS
WITH
 AUTOMATIC HEAT CONTROL
 GIVE THEM
 CORRECT CARBURETION

DO THEY GET IT?



BUICK

ASK THE OWNERS!



NASH

DO YOU KNOW?

YOU CAN NOW OBTAIN SPECIALLY DESIGNED MARVEL INSTALLATIONS
 IN COMPLETE PACKAGE FORM FOR:

CHEVROLET-FORD-STUDEBAKER-DODGE-JEWETT-HUDSON-Etc.
 MARVEL CARBURETER CO., FLINT, MICH.



**The SPRING of
 Steady Profits**

Titanic Springs bring steady profits to Titanic dealers.

Titanic sales helps and road signs advertise your shop to the motorists. Titanic outstanding durability brings you reputation for good service, gives your customer that satisfaction that brings them back for other things.

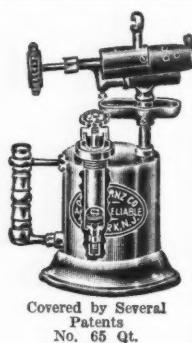
And Titanic service enables you to meet your orders promptly, without carrying an unwieldy and profit-eating stock. Even obsolescents and special orders are on their way in 36 hours or less.

Order from Titanic jobbers for quality, service and profit.

THE TUTHILL SPRING COMPANY, 760 Polk St., Chicago, Ill.

Quality Spring Builders for Forty-five Years

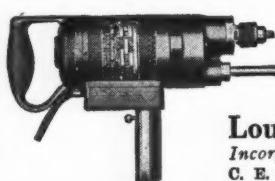
TITANIC SPRINGS
Alloy Steel Throughout



YOU SHOULD ALWAYS
consider the quality and the merits
of the
"ALWAYS RELIABLE"
when you order torches and furnaces. These articles have given perfect satisfaction since 1876, and will continue to do so in the future.
If you have not stocked this line in the past, you should do so immediately; then watch your sales increase.
Jobbers can supply from stock, or will gladly order for you.

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OFFICES IN NEW YORK CITY, SAN FRANCISCO, LOS ANGELES,
SEATTLE, HELENA, MONT., AND ST. THOMAS, ONT.

Get This "Pioneer" \$65 Garage Special



Electric Drill and Valve Grinder

Greatest time and money saver, as well as money maker, for your shop—

"It Will Do The Work"

Louisville Electric Mfg. Co.
Incorporated Louisville, Ky., U. S. A.
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Completely Gemco made, the big selling line
GEMCO MFG. CO.
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Gemco
BUMPERS

The SKINNER OIL RECTIFIER

More than a new accessory, a necessity. Makes one filling of oil good for 2500 miles or more. Prevents crankcase dilution. Prevents oil pumping. Improves lubrication, thus saving fuel.

Profit by the interest this device is creating among car owners.
Write for complete details.

THE MASTERCRAFTS CORP.
Brattleboro Vermont



Any Motor Will Run Better With A
PINES AUTOMATIC
INTERFRONT
TRADE MARK REG. U. S. PAT. OFF.
Splendid Profit, No Servicing
There is only one Winterfront. It is made by Pines.
Distributors have stock for immediate delivery.
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Lorentzen Headlight Kontrol
AN AUTOMOTIVE
NECESSITY THAT SELLS
LORENTZEN HEADLIGHT KONTROL, INC.
60 Grand St. New York City



Automotive Assortment of Cotter Pins

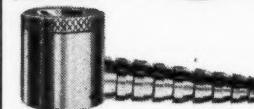


Consisting of the essential Automotive sizes of Cotters, packed in a strong reinforced Leatherette covered case, is the only practical arrangement that assists the Retailer making pick-up sales, by eliminating his handling many small Cotter boxes. It also is an economy and time saver to garage and repair shop mechanics.

We also make the well known "Ideal" assortment in round screw top container as well as assortments for Agricultural Implements and Hardware requirements. We manufacture all sizes of Cotter Pins—Steel and Brass.

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Just a light touch against the valve starts an instant and free flow of air into the tire. Practically no wear on washers. 90c from all jobbers.

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We are manufacturers of transfer products for wood, glass, leather and metal. Special designs made to order on short notice, tell us what you want and we will submit sketches and prices.

We stock a complete line of Automobile Initials consisting of over 40 different styles and sizes. Write us for prices.

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SMOKELESS CARS DRY PLUGS

Guaranteed with
MEGSON RINGS
4 years' tested service
Your jobber—at once
or write direct

Megson Piston Ring Co.

807-11 Flatbush Ave., Brooklyn, N. Y.



PROTECTOMOTOR **REG. U. S. PAT. OFF.**
Perfect Positive Protection **99 $\frac{9}{10}$**
EFFICIENT

Filters all dust, sand and grit out of air supply to carburetor and motor. Write us for facts.

STAYNEW FILTER CORPORATION
Rochester, N. Y.



Built to Car-Maker's
Specifications

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Thirty-seven
BRANCHES
AHLBERG BEARING COMPANY
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(Trade name registered)

Expansion Reamers



Smooth-Kut (trade name registered) Expansion Reamers are the only full spiral flute expansion reamers on the market. They cut round and smooth, shearing the metal. In this way eliminating chatter. Extremely long life. Great range of expansion. Used in production by Studebaker, Velie, Franklin, Lycoming, Muskegon, many others. Sold singly or in complete sets. Insist on Smooth-Kuts—beware of imitations.

Order through your jobber

Millersburg Reamer & Tool Company

Millersburg, Pa.

25

Uses

On Every

Car

TANPAC TENAX SHEET PACKING

The service man who is acquainted with the uses of TENAX and TANPAC Sheet Packing, knows where to go for the best results in the case of 25 points of necessary maintenance on every car.

Write us for complete information on these 25 ways to make money with TENAX and TANPAC.

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The Bearings Company of America, Lancaster, Penna. Angular Contact Thrust Bearings. Angular Contact Radial Bearings. Manufacturers of Thrust Ball Bearings of all types. Let our Engineers help to solve your Bearing problems.

The Bearings Company of America,
Lancaster, Penna.

Detroit, Mich., Office,
1012 Ford Bldg.

TURN WASTED TIME INTO MONEY!

Every Purchaser Finds Numerous Uses for the Torit Acetylene Torch No. 13

Uses Acetylene Only. No oxygen or air pressure required; tips suck in air. Simply connect to Presto auto tank, light gas, and the outfit is put to work. Beats anything you ever tried for soldering, heating, melting or light brazing. Consists of 4 tips for different kinds of work, soldering copper, 5 ft. tubing, tank connection.

ST. PAUL WELDING & MFG. CO. 169 Third St., St. Paul, Minn.



"THE LIGHT WITH THE ADJUSTABLE SHUTTER"



For
Any
Car

At
\$1.25

"Grif-Ho" Non-Glare Dash Light

The adjustable shutter allows the driver to obtain any degree of illumination in the front compartment, from a soft, indirect lighting of the instruments to a full flood of light sufficient to read a watch, map, inspect battery, or to light the running board and curb when door is open.

Simple installation with hand drill—no large holes to cut in dash. Beautifully finished in polished nickel and ebony black enamel. Standard equipment on well-known cars.

THE FASTEST SELLING ACCESSORY ON THE MARKET



A display box on dealers counter sells these lights without effort. Every sale brings in new customers who saw it. A quick turnover at liberal discount makes the real business building profit. ASK YOUR JOBBER—if he cannot supply, write us.

This Attractive Display Box Furnished with Every 24 Lights

Griffith-Hope Co.
29 Erie Street
MILWAUKEE, WIS.

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For Shop Profits

More than 1000 repair shops have found that the installation of SIMPLICITY Precision Machinery and Tools means profits. Write for literature, low prices and terms on Simplicity Reborer and Grinder, Valve Grinder, Crank Pin Tool, Re-Seating Cutters and Pilots.

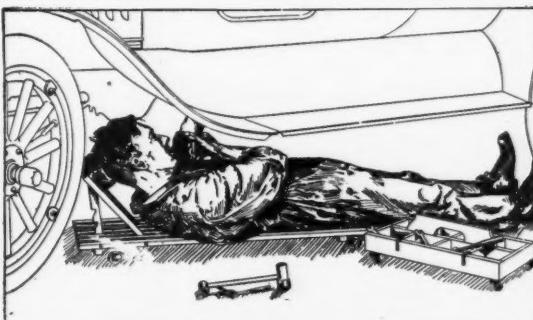
Ask Us to Give You a Free Demonstration in Your Own Shop on One of Your Own Jobs

SIMPLICITY MANUFACTURING CO.

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Koch Kreeper No. 3

Price,
East of
Rockies,
\$4.00;
West of
Rockies,
\$4.50;
Postage
Prepaid.



Patent adjustable padded headrest, easily operated. Long comfortable curved bed, finished in waterproof varnish. Equalled by none. If your jobber hasn't them, write us direct.

THE FORT RECOVERY STIRRUP CO.
Fort Recovery, Ohio, U. S. A.



**Visible Night and Day
SAFE-T-STAT
ENGINE HEAT INDICATOR**
Always Accurate Theft-Proof

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CUSTOM BUILT

KISSEL MOTOR CAR CO., Hartford, Wis.

*The Kissel Dealer
does not meet competition. He makes
others meet it.*

**MONOGRAM
ORIGINAL
SELF LOCKING RADIATOR CAP**

THE KINGSLEY-MILLER CO.
Successors to
(General Automotive Corporation, Chicago)
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ARROW HEAD

Pistons, Piston Pins, Axle and Drive Shafts
are made according to rigid specifications.

They are dependable.

ARROW HEAD STEEL PRODUCTS CO.,
Minneapolis, Minn.



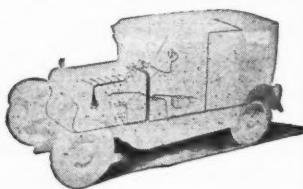
**UNITED STATES
Portable Electric
DRILLS**

Ask for THE UNITED STATES ELECTRICAL TOOL CO.
Catalog 105
Cincinnati, Ohio, U. S. A.

Built by the oldest maker of
Portable Electric Drills in the
World.

Packard
Cable

The Packard Electric Co.
Warren, Ohio



**RAMCO
Cushion
INNER RINGS**
fit behind piston rings and keep them in perfect contact with the cylinder walls at any motor speed or temperature.

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Cold-Drawn
Sockets



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Wrench
Sets

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Adjustable. Two sizes will clamp any hose of any diameter. Made from cold rolled steel out of wire. No rough edges to cut hose. Put on in less than a minute. Everlastingly leak-proof. Order Universal Hose Clamps. Trademark on every clamp and carton. Get them from your jobber—or write us.

UNIVERSAL INDUSTRIAL CORP.

Hackensack, N. J.

BIG MONEY IN THIS SERVICE

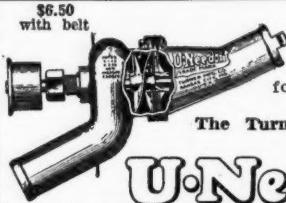
Dealers and shops make big money through the control of a franchise which entitles them to the exclusive use of the patented "KLEAN RITE" system of washing and polishing automobiles.

This system has turned a job into an impressive, highly profitable business.

Write for full particulars

Klean-Rite Auto Laundry Company
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THE Pump—



with all the features that a pump for Fords should have. Highly efficient. Get our dealer plan.

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Kansas City, Mo.

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ROTARY PUMP
for FORDS

FISK TIRES

*There's a Fish Tire of extra value in every size,
for car, truck or speed wagon*



TESTBES TOS

REG. U. S. PAT. OFFICE
Highest quality brake lining—tested—unconditionally guaranteed.

American Asbestos Company
Norristown, Pa.

Transmissions
and Clutches



Trucks, Busses
Passenger Cars

FOR
QUICK SERVICE ON COMPLETE UNITS OR PARTS
BROWN-LIPE GEAR CO.
SYRACUSE, N. Y.



Armatures Rewound

Prompt Service

Low Prices. Ford Generator
or Starter rewound. \$1.60.

Warren J. Bauman Co.
Lock Haven, Pa.



TAKE THE END-PLAY OUT!

—WITHOUT PULLING THE MOTOR



THE C. A. ADJUSTABLE CENTER BEARING CAP corrects Ford crankshaft end play and sets magneto for highest efficiency without removing the motor. Easily and quickly installed. Guaranteed for one year. List price \$3.75. Ask your jobber or dealer or write us direct.

ADJUSTABLE BEARING CO., Inc.
Dept. M. Brazil, Indiana

Pat'd 7-22-22

The Adams Adjustable Foot Rest

Adjusts comfortably and easily to most convenient height for any driver's leg. Foot lies in normal restful, uncramped, safe position. Big, fast seller. Senior, \$3.50. Junior, \$1.25. Ask your jobber.

Adams Mfg. Co.
Galesburg, Ill.

Ernie Hall says:
"You can't hold compression or stop oil pumping by putting round rings in an oval cylinder. The Hall is the only hone guaranteed to make an oval hole round as well as parallel."

THE HALL MFG. COMPANY
434 Dorr Street
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Stops Pump Shaft Leaks Immediately and Permanently

Conneaut Plastic Metallic Packing molds in fingers. Fits in stuffing box. Forms a practically frictionless bearing. "Take it up" like a bearing. In one and five pound cans. Remarkable results. Your jobber has it or write direct.

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\$300 PROFIT Monthly from HB
8 Hr. Battery Charging

Add battery charging profits to your present business! \$35 cash brings HB One-Day Charging outfit. Your profits pay balance with nice surplus besides. Thirty-day free trial on money-back guarantee. You can easily make \$150 to \$300 monthly. Write today for Bulletin 205

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Pays For Itself ~ Earns Big Profits

DILL INSTANT-ONS
Dust and Valve Cap
Off or On in 5 Seconds

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BRUNNER AIR COMPRESSORS
FREE

Write for the Book
"AIR PROFITS"
describing many new uses for compressed air. Shows how to make an air compressor earn greater profits.

BRUNNER MFG. CO.
UTICA
NEW YORK

CLASSIFIED ADVERTISING

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SAVES 50% TO 75% ON ALL CARS
New and Used Gears—Springs and Axles—Cylinders—Motors—Rear Systems, etc. Wire or Write

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LARGEST CAR WRECKERS IN INDIANA

HOUSE OF A MILLION
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The largest stock of new and used car and truck parts in the world. We have everything. Always mention model and serial number in order. Write us. All inquiries answered promptly.

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Lighter, stronger, and longer wearing than aluminum or iron. Can be fitted with bronze bushings in the wrist pin holes same as in iron pistons. Dowmetal has no permanent growth. The expansion is little more than iron.

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Formerly Member Examining Corps, United States Patent Office

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Prompt service. Highest references. Established 1884.
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NEW HUDSON COACH BODIES—Taken off new 1926 Hudsons where we mounted custom made Coupe bodies. Auto Trunk Co., Oshkosh, Wis.

SITUATIONS WANTED

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Manufacturers of Screw Machine and Automotive Products
Cushers Sales Dep't, Fulton-Dean Co.
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Spring-steel, Oil-tempered Bumpers in Six Complete Styles. Guaranteed Satisfactory Attaching Arms for all Leading Makes of Cars.

We invite comparison in appearance, quality and price.

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GATES VULCO

Fan Belts and Radiator Hose

Made By
The World's Largest Makers of Fan Belts

WEL-EVER

"OIL CONTROL" PISTON RINGS

The Motor Necessity That Has Made Good
Backed by Seven Years' Satisfactory Service

THE WEL-EVER PISTON RING CO., TOLEDO, OHIO
Sold most everywhere. If your dealer cannot supply you write us.

A Complete Line of Overland Fours
A Complete Line of Overland Sixes
Willys-Knight Fours—Willys-Knight Sixes

ALL UNDER ONE FRANCHISE

EKLA All-Rubber Radiator Hose
—is tough and long-wearing—not easily damaged by heat, oil, vibration or radiator compounds. Sold in cut lengths for Fords and 3-foot lengths, all sizes with inch markings.
EKLA prices allow unusual profits to the trade.

THE ECLAT RUBBER COMPANY
Cuyahoga Falls, Ohio

SHAFER
Self-Aligning ROLLER BEARING
PAT. & PATS.PENDING

SYRACUSE MOTOR CAR CO.

SYRACUSE, N.Y.
March 11, 1925.

Shafer Bearing Corp.,
Chicago, Ill.

Replying to your request for our experience with Shafer bearings as used in the present type Maxwell cars.

We are very pleased to be able to tell you that since the introduction of the latest series we have not had a bearing failure of any kind. Furthermore, we are remarkably free from any bearing noises or gear noises, which we ascribe to the self-aligning feature of the Shafer bearing.

We have no hesitation in recommending it highly to anyone.

Yours very truly,
Jesse S. Sullivan
General Manager.

JS:CM

SHAFER BEARING CORPORATION
6501 WEST GRAND AVENUE
CHICAGO, ILL.

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Pines Winterfront Co.	84	Union Mfg. Co.	84
Piston Ring Co.	1	Universal Industrial Corp.	86
Prest-O-Lite Co., Inc.	81		
Quincy Compressor Co.	70	Watervliet Tool Co., Inc.	81
R.I.V. Co., Inc.	80	Weaver Mfg. Co.	7
Ramsey Acc. Mfg. Corp.	86	Wel-Ever Piston Ring Co.	87
Ray Mfg. Co.	63	Western Wire Prod. Co.	84
Rose, Frank, Mfg. Co.	84	Wilkening Mfg. Co.	62
Rushmore Laboratory	58 and 59	Willard Storage Battery Co.	53
Russell, Rurdall & Ward Bolt & Nut Co.	90	Willys-Overland, Inc.	87
		Yavapai Onyx Mining Co.	80
Zenith-Detroit Corp.	69		

An
Original
Design



Curtis Style "V"
Two Stage Outfit
Sizes three fourths
to 2 h.p. Automatic
Starter.
Established 1854

Stability~Progress

Backed by 71 Years' Experience

Every Curtis Compressor Outfit and Air Stand has a background of stability measured by 71 years of progressive manufacturing experience.

The last 28 years of this long period have been devoted to the design and perfection of Curtis Air Compressors—so that today every buyer of Curtis equipment can be certain of these two vital facts:—(1) He is buying a thoroughly reliable product that has long been recognized as the standard of excellence and (2) he is dealing with an institution of known integrity and stability whose product is not likely to become an "orphan."

Superior Curtis Compressor Features

Controlled splash oiling system enables compressor to run longer on same amount of oil. Fan flywheel helps cool cylinders and increases efficiency. Valves light, large, inspectable. Heads removable without loosening pipe connections. Hand unloader (or centrifugal on automatic outfits) permits starting unloaded against full tank pressure. No spitting of oil when the Curtis Automatic cuts out. Curtis two-stage has copper inter-cooler, the most efficient metal for this purpose. Many other features.

CURTIS AIR AND WATER STAND—Made either column or low type, free from all complicated parts, automatic valves and the like which quickly get out of order. Present many exclusive features.

CURTIS PNEUMATIC MACHINERY CO.
1527 Kienlen Ave.
St. Louis, U.S.A.
Branch Office: 530-H Hudson Terminal, New York City



CURTIS
1854 ANNIVERSARY 1925

Mail this Coupon

CURTIS PNEUMATIC MACHINERY CO.
1527 KIENLEN AVE.

ST. LOUIS, MO.

Gentlemen:—Please send me full details on Curtis Air
Compressors Curtis Air Stands, your proposition and prices.

Name.....

Address.....

Jobber's Name.....

Address.....

The Story of
the Empire
New Process
Bolt . . .
Chapter 1. No. 6

Profits Buried in the Scrap Heap

ABAD thread makes a bad bolt. And a bad bolt is useless. That is why your scrap heap attains such tragic proportions every year—a sheer waste of good profits.

But that's not all the harm a bad thread can do. It may show no symptoms of defective construction till after it's on and the job delivered. Then it may strip and work loose, and a good customer will be thinking profane thoughts about Somebody. Is that risk worth taking?

You're taking it all the time, when you use cut thread bolts. The first few bolts that pass through a new, keen edged cutting die may be clean and accurate—but an edge that's cutting through steel won't hold its keenness long. Soon the thread tolerance begins to widen as the edge begins to dull. Even a very small variation—something you can't see on the thread or "feel" with a ring gauge—can cause trouble. And variations in cut threads are by no means small. You get all kinds: a wide assortment of misfits.

Threads of This Bolt Are Made in New Way

Empire New Process bolts are made by a new method that eliminates cutting. The thread is built up on a specially prepared blank, without removing any stock. The dies used for this purpose are made on a new type of machine tool, of which no duplicates are to be found in other bolt plants. So accurate are the dies, and so precise the bolt machines in which they are operated, that the bolt thread, as shown on the comparator chart, has as close a limit of tolerance as that of a hardened and ground gauge. It has six times the accuracy of the finest cut thread.

Once you've started using Empire New Process bolts, you'll never use cut thread bolts again. You'll never go back to the days of waste and extravagance and inefficiency that characterized the old style bolt—

And one potent reason is that you can get Empire New Process bolts at the regular Empire catalog prices, with no advance in cost for their finer quality. Thus they represent a big, substantial saving over other types of bolts by eliminating all waste. Every New Process bolt you purchase will fit the nut it was intended for, and you'll never know the meaning (and the cost) of stripped and malformed threads. Ask for samples.

**RUSSELL, BURDSALL & WARD
• BOLT & NUT COMPANY •
PORT CHESTER, N.Y.
PENBERWICK, CONN. - CHICAGO - SAN FRANCISCO - ROCKFALLS, ILL.**

Makers of Bolts, Nuts and Rivets Since 1845

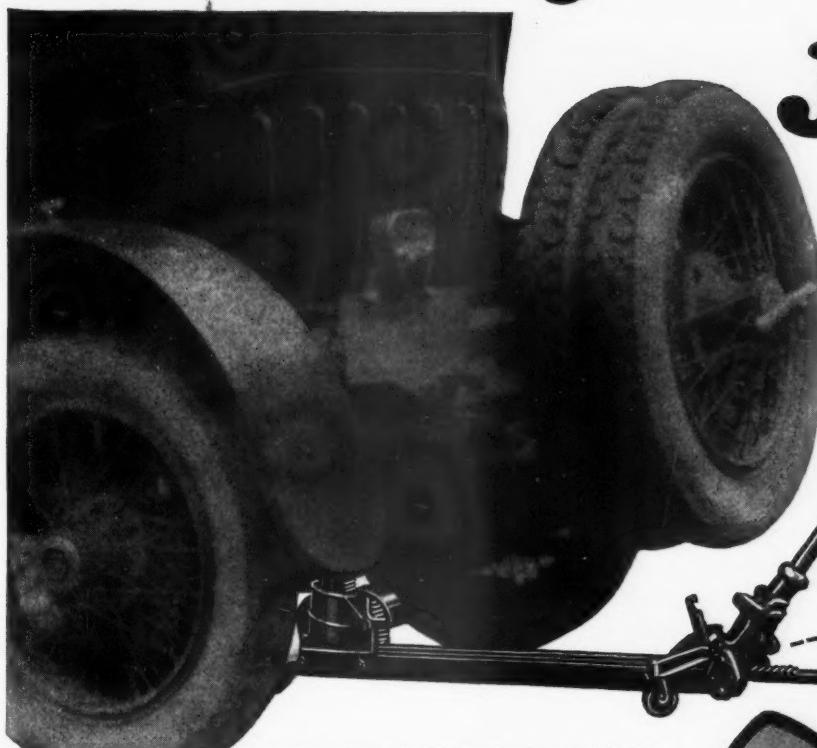


EMPIRE *New Process* BOLTS

Comparator photograph, New Process bolt thread.

Comparator photograph, hardened and ground gauge thread.

Manley Garage Jack



Can be operated in long or short strokes. Overhanging bodies never interfere with its easy operation.

3 IMPORTANT FEATURES

Price
\$36

1. It can be operated notch by notch, so that the jack may be used in close quarters or under overhanging bodies.
2. The pressure required to operate it is uniform from beginning to end of the stroke.
3. It is correct mechanically, and like all Manley Equipment has a tremendous factor of safety. In other words, it is unusually strong and rugged and can be depended upon under all conditions.

It can be supplied with a minimum clearance of either $6\frac{1}{4}$ " and travel of $4\frac{1}{4}$ " or minimum clearance of $7\frac{3}{4}$ " and travel of $5\frac{1}{4}$ ".

The price is the same for either type. Merely specify "High Type" or "Low Type."

Can be supplied with rubber tires at \$11 extra.

Easy
Lift

Excess Strength
Positive Action

Costs no more than an
ordinary Jack

Get a Manley

Write us for special bulletin.
MANLEY MFG. CO., York, Pa.

You can secure from your own jobber.



CHANDLER

THERE is no six-cylinder closed car strictly comparable to the Chandler Coach Imperial.

It is the only quality closed car in the "less-than-\$2000-class" selling at exactly touring car price.

It is the only car of its type that combines the luxuries of a superior Fisher Body, the brilliant performance of the Pikes Peak Motor, and the astonishing ease in speed changing that the Traffic Transmission makes possible.

As the leader of the Chandler line, it has been a consistent profit producer for dealers of every size in every type of community.

(The Traffic Transmission is built complete in the Chandler plant under Campbell patents.)

Duco finish—
Balloon Tires

\$1595

f. o. b. Cleveland

Four-wheel
brakes optional

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